

Adult Education Strategies: Identifying and Building Evidence of Effectiveness

NCEE 2021-007A
U.S. DEPARTMENT OF EDUCATION

A Publication of the National Center for Education Evaluation



U.S. Department of Education

Miguel Cardona

Secretary

Institute of Education Sciences

Mark Schneider

Director

National Center for Education Evaluation and Regional Assistance

Matthew Soldner

Commissioner

Melanie Ali

Project Officer

The Institute of Education Sciences (IES) is the independent, non-partisan statistics, research, and evaluation arm of the U.S. Department of Education. The IES mission is to provide scientific evidence on which to ground education practice and policy and to share this information in formats that are useful and accessible to educators, parents, policymakers, researchers, and the public.

We strive to make our products available in a variety of formats and in language that is appropriate to a variety of audiences. You, as our customer, are the best judge of our success in communicating information effectively. If you have any comments or suggestions about this or any other IES product or report, we would like to hear from you. Please direct your comments to ncee.feedback@ed.gov.

This report was prepared for the Institute of Education Sciences (IES) under Contract 91990018C0057 by Mathematica. The content of the publication does not necessarily reflect the views or policies of IES or the U.S. Department of Education nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.

April 2021

This report is in the public domain. While permission to reprint this publication is not necessary, it should be cited as:

Borradaile, K.; Martinez, A., Schochet, P., Walsh, E., and Robles, S. (2021). Adult Education Strategies: Identifying and Building Evidence of Effectiveness, Appendices. (NCEE 2021-007A). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance.

This report is available on the Institute of Education Sciences website at <http://ies.ed.gov/ncee>.



Adult Education Strategies: Identifying and Building Evidence of Effectiveness

April 2021

Kelley Borradaile

Alina Martinez

Peter Schochet

Elias Walsh

Silvia Robles

Mathematica

Contents

Appendix A. Details of the Approach to Conducting the Adult Education Strategies Evidence Review	A-1
A.1. Applying a Framework to the Systematic Evidence Review.....	A-4
Define the purpose: Identify evidence of effective strategies in adult education and identify gaps in the research.	A-4
Determine and use a clear process: Apply the What Works Clearinghouse standards and procedures.	A-4
Organize adult education strategies into seven categories.	A-4
A.2. Defining the Scope of the Review.....	A-12
Focus the scope on WIOA Title II-eligible activities, populations, and settings.....	A-12
Include only studies with research designs eligible under the What Works Clearinghouse.	A-13
A.3. Searching for Relevant Literature on Strategies in Adult Education.....	A-13
Use a broad set of search terms.....	A-13
Search a large set of databases and websites to identify publicly available literature.	A-15
Request that researchers, practitioners, and policymakers also submit relevant studies.....	A-16
A.4. Screening and Reviewing Studies	A-16
Screen references using the What Works Clearinghouse's systematic procedures to identify eligible studies.	A-16
Review studies using the What Works Clearinghouse's systematic procedures to identify rigorous evidence.....	A-17
A.5. Summarizing and Characterizing Findings	A-19
Summarize RISP outcome domains within four key areas of adult education learner outcomes: academic skills, educational progress, employment, and earnings.....	A-19
Characterize study findings on the four key areas of learner outcomes using What Works Clearinghouse procedures.	A-19
A.6. Reporting Findings	A-20
Simplify the characterization of findings to positive, negative, no effect, or mixed effects.....	A-20
Organize findings using adult education categories and sample strategies.	A-21
Appendix B. Details of Reviewed Studies.....	B-1
B.1. References for all Studies Reviewed.....	B-4
Meets WWC standards without reservations.....	B-4
Meets WWC standards with reservations.....	B-6
Does not meet WWC standards.....	B-8

B.2. Study Details for the 22 Studies that Met What Works Clearinghouse Standards	B-12
Study details for Alamprese et al. (2011): Making Sense of Decoding and Spelling	B-12
Study details for Alamprese et al. (2011): K-3 curriculum adapted for adult learners.....	B-15
Study details for Anderson et al. (2017).....	B-17
Study details for Batchelder & Rachal (2000).....	B-19
Study details for Condelli et al. (2010)	B-20
Study details for Cook et al. (2018)	B-22
Study details for Glosser et al. (2018).....	B-24
Study details for Gray et al. (2018)	B-26
Study details for Greenberg et al. (2011): Decoding and Fluency	B-28
Study details for Greenberg et al. (2011): Decoding, Comprehension, and Fluency	B-30
Study details for Greenberg et al. (2011): Decoding, Comprehension, Fluency, and Extensive Reading	B-32
Study details for Greenberg et al. (2011): Extensive Reading	B-35
Study details for Hamadyk & Zeidenberg (2018).....	B-37
Study details for Hock & Mellard (2011): Prediction Strategy	B-39
Study details for Hock & Mellard: 2011: Summarization.....	B-41
Study details for Martin & Broadus (2013).....	B-43
Study details for Miller et al. (2016)	B-45
Study details for Modicamore et al. (2017)	B-47
Study details for Robinson (2018).....	B-49
Study details for Sabatini et al. (2011): Corrective Reading	B-51
Study details for Sabatini et al. (2011): Guided Repeated Reading.....	B-53
Study details for Sabatini et al. (2011): Retrieval, Automaticity, Vocabulary Exploration - Orthography	B-55
B.3. Number and List of Effectiveness Studies within Particular Categories of Adult Education Strategies, by Outcome Area	B-57
B.4. Strategies Examined by the 22 Studies that Met Standards and their Effects on Learner Outcomes	B-60
B.5. Presence of Rigorous Research on Particular Strategies in Adult Education and the Effects on Learner Outcomes	B-71

Exhibits

Exhibit A.1.	Overview of the approach for conducting the systematic evidence review	A-3
Exhibit B.1.	Terms and definitions used in the details of reviewed studies	B-3

Tables

Table A.1.	Categories and example strategies in adult education	A-6
Table A.2.	Search terms used in literature search	A-14
Table A.3	Databases and websites searched.....	A-15
Table A.4.	Mapping of RISP outcome domains to adult education outcome areas: academic skills, educational progress, employment, and earnings.....	A-19
Table A.5.	Final characterization of findings	A-20
Table B.1.	Number and List of Effectiveness Studies within Particular Categories of Adult Education Strategies, by Outcome Area.....	B-57
Table B.2.	The 22 studies that met standards categorized by strategy, and their effect on learner outcomes.....	B-60
Table B.3.	Presence of rigorous research on selected literacy strategies and the effects on learner outcomes.....	B-71
Table B.4.	Presence of rigorous research on selected numeracy strategies and the effects on learner outcomes	B-73
Table B.5.	Presence of rigorous research on selected English language acquisition strategies and the effects on learner outcomes	B-74
Table B.6.	Presence of rigorous research on selected adult secondary education strategies and the effects on learner outcomes	B-75
Table B.7.	Presence of rigorous research on selected strategies for improving access to instruction and the effects on learner outcomes	B-76
Table B.8.	Presence of rigorous research on selected career development and transition strategies and the effects on learner outcomes	B-77
Table B.9.	Presence of rigorous research on selected targeted learner support strategies and the effects on learner outcomes.....	B-79

Appendix A.

Details of the Approach to Conducting the Adult Education Strategies Evidence Review

This appendix contains the technical details of the approach followed for the systematic evidence review of research on the effectiveness of strategies in adult education. It includes more information about the organizing framework for the review and describes the process for defining its scope, identifying relevant literature, screening references and reviewing studies, and summarizing and reporting on findings. Details are provided so that someone familiar with systematic evidence reviews can understand the approach that was used and how it draws on the approach specified by the Institute of Education Sciences' What Works Clearinghouse (WWC). Some technical terms are explained throughout for readers less familiar with the WWC or research design. Exhibit A.1 presents an overview of the approach, followed by a more detailed and technical presentation of how the review was conducted.

Exhibit A.1. Overview of the approach for conducting the systematic evidence review

How were studies identified?

- By searching a large set of electronic databases and websites—including those identified by the Institute of Education Sciences' What Works Clearinghouse (WWC) and experts in the field—for publicly available literature.
- By using a broad set of search terms for the eligible populations and allowable activities under Title II of the Workforce Innovation and Opportunity Act (WIOA).

How were studies determined to be eligible for review?

Studies had to meet each of the following criteria:

- **Type of learners:** Those who were age 16 or older who were not enrolled in high school, and who met at least one of the following three criteria for adults eligible for federally-funded adult education:
 - Lacked basic skills, such as literacy and numeracy
 - Lacked English language proficiency
 - Did not have a high school diploma or a high school equivalency credential
- **Strategy being evaluated:** At least one allowable under Title II, including, but not limited to, adult education and literacy activities, integrated education and training, English language acquisition activities, and workforce preparation activities. Studies testing some strategies were excluded: (1) Family literacy services, due to resource limitations and WIOA's primary focus on workforce development, and (2) Title II-eligible strategies when combined with non-eligible, large-scale services, such as residential programs, because the effect of eligible activities could not be isolated.
- **Location and timing:** Conducted in the United States and published within the past 20 years. This allows for the inclusion of research that adequately represents the status of the field and avoids the inclusion of research conducted with populations and in contexts that may be very different from those in which Title II services are implemented.
- **Outcomes:** Examine at least one outcome aligned with the performance indicators for programs receiving Title II funding. These indicators fall into four areas: academic skills, educational progress, employment, and earnings.
- **Research design:** Use a randomized controlled trial, quasi-experimental, regression discontinuity, or single-case design. These are all methods that can provide evidence that effects are due to the strategies tested and for which WWC standards and procedures can be applied.

How were the eligible studies reviewed?

- By following the WWC's version 4.0 Standards and Procedures Handbooks and the Review of Individual Studies Protocol (RISP) version 4.0.¹ This allowed the study team to identify studies that used a rigorous design to examine effectiveness.

How are findings reported?

- By grouping outcomes into areas that align with the primary indicators of performance for programs receiving Title II funding—academic skills, educational progress, employment, and earnings.
- Characterized as having either a positive effect, negative effect, no effect, or a mixed effect (that is, a combination of statistically significant effects that were both positive and negative).

¹ The WWC version 4.0 Standards and Procedures Handbooks can be found at: <https://ies.ed.gov/ncee/wwc/Handbooks>. The WWC's Review of Individual Studies Protocol can be found at: <https://ies.ed.gov/ncee/wwc/Handbooks#protocol>.

A.1. Applying a Framework to the Systematic Evidence Review

To help summarize the evidence about adult education strategies, reviewed studies and their findings were organized into high-level groups or categories (Exhibit A.1). These categories were developed in consultation with researchers, practitioners, and policymakers.

Define the purpose: Identify evidence of effective strategies in adult education and identify gaps in the research.

This review of existing research responds to a mandate from Title II of the Workforce Innovation and Opportunity Act of 2014 (WIOA), also known as the Adult Education and Family Literacy Act. This mandate specifies that ED conduct a national assessment of adult education, including examining the extent to which strategies in adult education are effective. A necessary component of the review was identifying rigorous studies that tested the impact of strategies in adult education on key learner outcomes in the following areas: academic skills, educational progress, employment, and earnings. These areas are closely tied to the goals of adult education as emphasized under Title II and directly relate to the outcomes for which federally supported adult education programs are held accountable under WIOA.

Determine and use a clear process: Apply the What Works Clearinghouse standards and procedures.

The review, described in greater detail below, was guided by specifications set forth by the WWC in its version 4.0 Standards and Procedures Handbooks. Following WWC standards and procedures ensures that this review used an objective and consistent process for assessing the quality of the research evidence. The WWC was developed to identify high quality research that answers the question, “What works in education?”. To do so, the WWC sets standards and procedures to identify well-designed and well-implemented effectiveness studies. These studies provide trustworthy evidence that the effects observed are the result of the strategies tested rather than other potential sources.

Organize adult education strategies into seven categories.

Table A.1, which was developed in consultation with researchers, practitioners, and policymakers lists the adult education categories and some corresponding examples of strategies that might be tested.

- The **categories** are meant to be distinct from one another. For example, the *literacy instruction* and *English language acquisition instruction* categories both involve literacy, but the *English language acquisition* category captures instruction that specifically targets learners whose native language is not English and who lack English proficiency. The *career development and transition instruction* category and the *individualized and targeted supports for learners* category both focus on supporting learners but the *career development and transition instruction* includes programs like Bridge classes and IET while *individualized and targeted supports* include supplemental supports.
- The **strategies** include some examples that are emphasized in WIOA, in wide use in the field, or innovative and expected to be of growing interest. The strategies within categories are not intended to be comprehensive, but rather illustrative examples of strategies that could be tested and might contribute to an understanding of the category.

The review team used the authors' descriptions of what was examined in the study to identify the relevant strategies and subsequently the categories of adult education that were examined. Studies may have examined strategies in more than one category. Reviewers did not code the quality of implementation of the strategies. Authors were not asked to categorize their own studies or confirm the review team's categories, but content experts were consulted, when necessary. This means that the research team may have identified strategies and categorized studies in ways that differ from how others may have labeled the same studies.

Table A.1. Categories and example strategies in adult education

Categories	Strategies	Definition
Literacy instruction		
	Explicit instruction on reading	Direct and purposeful teaching focused on developing the components of reading. This could include decoding (such as the ability to apply knowledge of letter-sound relationships to correctly pronounce printed words); fluency (such as the ability to read with speed and accuracy); vocabulary (such as the depth, breadth, and flexibility of knowledge about words); and comprehension (such as understanding language from a written code that represents concepts and communicates information and ideas).
	Extended reading practice	Instruction that provides students with reading practice (for example, engaging with reading materials that are personally interesting or embedding reading practice in meaningful learning activities) that allows for application of new skills.
	Explicit framing	Instructional practice that provides a rationale for what is to be learned, the activities to be completed, and how they will help the learner.
	Explicit writing instruction	Direct and purposeful teaching focused on developing writing skills. This could include brainstorming; drafting (including selecting the right words and syntactic structure to convey the intended meaning, sentence construction, spelling, handwriting, keyboarding, capitalization, punctuation); getting feedback; revising; editing; and helping adults feel comfortable with writing, find their voice, develop an identity as a writer, understand how writers write, explore self-expression, and enhance communication.
	Integrated reading and writing instruction	Instruction that integrates reading and writing—for example, by having students read some text and then produce a series of essays or responses to topics from that text.

Categories	Strategies	Definition
	Instruction on spelling	Instruction that focuses on teaching students how to spell. This could include auditory approaches like phonics (for example, knowing the sounds of letters, breaking up words into syllables, and recognizing patterns); visual approaches (for example, highlighting difficult parts of words, looking for smaller words within words); kinesthetic approaches (for example, tracing letters, using Cloze exercises, rewriting incorrect words, using words in writing); and mnemonic approaches (such as memory aids).
	Literacy curricular materials designed for instruction	Specific literacy curricular materials designed for instruction (for example, textbooks, modules, software, and other branded materials).
	Real-world contexts in instruction, which can include authentic activities and materials	Instruction that uses authentic activities and materials not created for classroom instruction, gathered from actual contexts in which adults use the materials (for example, a workplace or restaurant) with the goal of improving literacy.
Numeracy instruction		
	Constructivist teaching	A student-centered and active learning approach to instruction; a program/curriculum/pedagogy in which students (rather than the instructor) are guided so they are the ones who make sense of the mathematics, connect ideas, conjecture, describe patterns, and generalize from them. This contrasts with explicit instruction (also known as “lecture” or “demonstration” approaches).
	Instruction focused on multiple strands of mathematical proficiency	<p>A program/curriculum/pedagogy that focuses on more than one of the five strands of mathematical proficiency:</p> <ul style="list-style-type: none"> • Conceptual understanding: Comprehension of mathematical concepts, operations, and relations • Adaptive reasoning: Capacity for logical thought, reflection, explanation, and justification • Strategic competence: Ability to formulate, represent, and solve mathematical problems • Procedural fluency: Skill in carrying out procedures flexibly, accurately, efficiently, and appropriately • Productive disposition: Habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one’s own efficacy

Categories	Strategies	Definition
	Numeracy curricular materials designed for instruction	Specific numeracy curricular materials designed for instruction (for example, textbooks, modules, software, and other branded materials).
	Real-world contexts in instruction	Instruction that uses authentic activities and materials not created for classroom instruction, gathered from the actual contexts in which adults use those materials (for example, a workplace or restaurant) with the goal of improving numeracy.
	Mathematical practices, including problem solving and mathematical justification	Instruction that provides students with opportunities to solve problems and then provides them with feedback.
English language acquisition (ELA) instruction		
	Focus on listening and speaking	ELA/English as a second language (ESL) instruction that focuses on the listening and speaking components of literacy, including pronunciation.
	Focus on reading and writing	ELA instruction that focuses on the reading and writing components of literacy.
	Integrate civics education into ELA instruction	Instruction in English language acquisition and instruction on the rights and responsibilities of citizenship and civic participation.
	ELA curricular materials designed for instruction	Specific ELA curricular materials designed for instruction (for example, textbooks, modules, software, and other branded materials).
	Real-world contexts in instruction, which can include authentic activities and materials	Instruction that uses authentic activities and materials not created for classroom instruction, gathered from the actual contexts in which adults use those materials (for example, a workplace or restaurant) with the goal of improving English language proficiency.
	Focus on language and terminology, also referred to as functional language skills, needed for the workplace	ELA instruction on the language and terminology relevant for specific occupational fields and industry certification exams in those fields.
	Connect native language literacy skills and learning strategies to English acquisition	Provide opportunities for learners literate in their native languages to transfer their literacy and learning strategies to the acquisition of English.
Adult secondary education (ASE)		
	Preparation for high school (HS) equivalency test	Instruction focused on preparing a learner to take an HS equivalence test.
	Competency-based HS equivalency	An approach that allows learners to progress toward demonstrating mastery of HS academic content, regardless of time, place, or pace of learning.
	ASE curricular materials or models designed for instruction	Specific ASE curricular materials designed for instruction (for example, textbooks, modules, software, and other branded materials).

Categories	Strategies	Definition
	Real-world contexts in instruction, which can include authentic activities and materials	Instruction that uses authentic activities and materials gathered from the actual contexts in which adults use those materials (for example, a workplace or restaurant) with the goal of helping learners obtain a high school degree or the equivalent.
Tools to improve access to instruction		
	Distance learning	An approach that delivers all instruction in an entirely virtual format. The technology used can include the Internet, broadcast media, closed circuit or cable television, wireless communication devices, videos, DVDs, or CD-ROMs.
	Blended learning	An approach that delivers instruction through a combination of in-person and virtual instruction, with components integrated and required as part of the course.
	Mobile or online learning tools to supplement instruction	Resources that learners can independently access outside of the classroom or through the Internet on a computer or mobile device to reinforce classroom instruction.
	Technology learning tools or virtual learning environments accessed in the classroom with oversight from an instructor	Approaches that use learning tools or virtual learning environments within a physical classroom with oversight from an instructor.
	Self-paced in-person facilitated learning	Approaches in which learners can move through the learning materials at their own pace with the support of a tutor or instructor.
	Alternative locations and times to accommodate working schedules	Programs offered at alternative locations (for example, at job sites or libraries) with flexible or convenient times to allow learners to plan around work schedules.
	Intake and orientation models	Approaches to learner intake and orientation. An intake process allows staff to assess individuals' academic skills and other factors that could affect their ability to succeed in a program (for example, child care needs, motivation, goals, career interests, academic experiences, learning styles, and previous academic assessments). An orientation process includes an introduction to and overview of the program and criteria for completing it, student responsibilities, any attendance policies, and counseling opportunities.
	Attendance policies	Programs that enforce an attendance policy requiring learners to participate in a number or percentage of classes/activities to stay enrolled.

Categories	Strategies	Definition
	Employer partnerships; for example, employer based or employer provided	Programs either based with or provided by an employer.
Career development and transition instruction		
	Integrated education and training (IET) using co-teaching approaches	Programs in which two teachers—one basic skills teacher and one occupational skills teacher—teach integrated curricula (adult education instruction with workforce preparation activities and workforce training) simultaneously and focused on a single set of learning goals. The model involves teachers planning together and teaching in the same classroom at the same time.
	IET through co-planning and alternate teaching	Programs in which two teachers—one basic skills teacher and one occupational skills teacher—teach integrated curricula (adult education instruction with workforce preparation activities and workforce training) simultaneously and focused on a single set of learning goals. The model involves co-planning and alternate teaching, in which teachers plan together but teach at separate class times.
	Contextualized basic skills instruction in literacy, numeracy, and English language acquisition	Programs with a group of instructional strategies designed to link the learning of basic skills with academic or occupational content by focusing teaching and learning directly on concrete applications in a specific career context of interest to students. This can include vocational ESL programs.
	Coordinated enrollment in adult education and occupational skills training	Programs in which students are enrolled in both adult education and occupational skills programs that do not share a curriculum.
	Pre-apprenticeships	Programs or strategies designed to prepare individuals to enter and succeed in a registered apprenticeship. Components of pre-apprenticeships may include the following: a partnership with a registered apprentice sponsor, an approved training and curriculum, hands-on training, industry-recognized credentials, and supportive services.
	Alternative credentialing or badges	Programs that enable students to learn from non-degree coursework to improve their skills and employability. This learning may culminate in digital badges, certificates, and micro-credentials.

Categories	Strategies	Definition
	On-ramp and bridge classes	Classes or programs to prepare learners to transition to either occupational training by providing basic skill instruction along with occupational content or employment skills instruction or to college courses by providing basic skill instruction along with college success strategies.
	Co-enrollment with developmental education at colleges	Approaches in which learners co-enroll in adult education programs and nontransferable courses, such as developmental education or “college success” courses (which teach students how to navigate through college life, including teaching them study skills, how to access various student resources, and so forth) and transferable, credit-bearing classes, often in specific industries or career fields.
	Co-enrollment with credit courses at colleges	Approaches in which learners co-enroll in adult education programs and courses that provide transferable, college-level credit. Such programs allow students the opportunity to develop skills and gain credentials within their specific career field while working on their secondary credential.
	Workforce preparation	Instruction that focuses on helping students learn skills necessary to be successful in the workforce (for example, critical thinking, digital literacy, self-management, and employability).
Individualized and targeted learner supports		
	Career navigation supports	Supports designed to help learners progress on a career path. Supports include career exploration and planning assistance; assistance in accessing financial supports for education; and support in developing study and work skills.
	Wraparound services to address basic needs and logistical barriers	Services to address basic needs and logistical barriers that learners might face (for example, basic needs, transportation, child care, housing, and supports).
	Texting or calls to encourage persistence	Approaches to remind students/encourage persistence by using text messages or phone calls.
	Re-entry initiatives and post-release services for formerly incarcerated individuals	Programs with a focus on helping formerly incarcerated individuals successfully transition to education and careers post-release.

A.2. Defining the Scope of the Review

The initial search for existing research studies cast a wide net to identify all relevant adult education literature, but then focused in on the most relevant studies.

Focus the scope on WIOA Title II-eligible activities, populations, and settings.

Eligibility criteria were established to align with the eligible adult education activities and individuals under Title II.

Type of learners

To be eligible for review, at least 50 percent of participants in the study—called the “study sample”—needed to meet several criteria. A study must have been conducted with learners who were age 16 and older; not enrolled in high school; and who lacked basic skills (for example, literacy, numeracy), lacked English language proficiency, or had no high school diploma or equivalency. A study was also eligible for review if it reported on a subgroup, that is a subset of learners, in which all group members satisfied these criteria.

Strategy being evaluated

The focus of this review was on strategies allowable under Title II. Allowable activities include, but are not limited to, adult education and literacy activities, integrated education and training, English language acquisition activities, and workforce preparation activities. Due to limited resources and WIOA’s focus on workforce development, studies were excluded that examined family literacy services. In addition, studies in which WIOA Title II eligible activities were combined with non-eligible activities were excluded. For example, studies that provided sample members with education and training alongside free housing were excluded from review because it was not possible to isolate the effect of the WIOA-eligible education and training activities from the effect of the non-eligible residential component. While this review uses the term *strategy* to refer to what was tested in a study, the studies themselves often used the terms *treatment* or *intervention*, which are also the terms used by the WWC.

Location and timing

Only studies conducted in the United States and that were published within the last 20 years were included in this review. These are standard criteria that reflect a preference to include studies in contexts most similar to those eligible for Title II services. Labor markets in other countries may be sufficiently different from those in the United States, limiting the generalizability of findings from non-U.S. studies related to employment and earnings outcomes. Although non-U.S. studies could help to inform what works in the U.S. regarding outcomes such as academic skills, because the review applied a single protocol systematically to all studies and outcomes, non-U.S. studies were excluded from this review.

Outcomes

Studies needed to examine an outcome—that is, a measure of learners' knowledge, skills or behaviors expected to change as a result of the strategy—aligned with WIOA primary indicators of performance, including for Title II programs. Accordingly, studies that measured academic skills, educational progress, employment, or earnings were eligible for inclusion in the review.

Include only studies with research designs eligible under the What Works Clearinghouse.

The WWC's Procedures Handbook version 4.0 was used to determine study eligibility. Specifically, studies were required to use research designs that can provide evidence that effects are due to the strategies tested. The WWC identifies four such designs—randomized controlled trial, quasi-experimental, regression discontinuity, or single-case designs.

A.3. Searching for Relevant Literature on Strategies in Adult Education

The review cast a wide net in its search for relevant published and unpublished literature. This effort included developing broad and inclusive search terms, searching a wide range of electronic databases and websites, and seeking recommendations from experts in the field of adult education.

Use a broad set of search terms.

The review used a broad set of search terms informed by the field (Table A.2). The selected terms describe the adult education-eligible populations and outcomes that align with the primary indicators of performance for programs receiving Title II funding—academic skills, educational progress, employment, and earnings. The search also included terms capturing evaluation, adult education strategies, and analysis concepts to identify studies that examined the effectiveness of strategies for adult education.

The WWC identifies four eligible research study designs for determining, with some confidence, whether something works:

Randomized controlled trial (RCT): When individuals or clusters of individuals in a study are randomly assigned to either receive the strategy being tested or not receive the strategy through a process like a lottery or coin toss. The groups are then compared to determine if the strategy was effective at improving outcomes like skills, educational progress, employment, and earnings.

Quasi-experimental design (QED): When decisions about which individuals or clusters of individuals in a study receive the strategy being tested are made using a process that is not random. The groups are then compared to determine if the strategy was effective at improving outcomes.

Regression Discontinuity Design (RDD): When individuals are assigned to receive a strategy or not based on a specific threshold on a continuous scale (such as scoring above a cut-off number on an achievement test). The groups are then compared to determine if the strategy was effective at improving outcomes.

Single-Case Design (SCD): When individuals receive the strategy being studied some, but not all, the time. Outcomes for the individual are measured at multiple times, both when they are receiving the strategy and not, to determine if the presence of the strategy improved their outcomes.

Source: Adapted from the What Works Clearinghouse Glossary.
<https://ies.ed.gov/ncee/wwc/Glossary>

Table A.2. Search terms used in literature search

Category	Search terms
Purpose of including terms	
Population <i>Terms to identify references that report on Title II-eligible learners</i>	"Adult basic education*" OR "Adult basic learner*" OR "Adult basic student*" OR "GED student*" OR "GED instruction" OR "HiSET student*" OR "HiSET instruction" OR "TASC* student*" OR "TASC instruction" OR "High school equivalenc*" OR "HSE student*" OR "Adult secondary*" OR "Adult English learner*" OR "Adult English student*" OR "Adult English language learner*" OR "Adult English language student*" OR "Adult English second language learner*" OR "Adult English second language student*" OR "Adult ELL*" OR "Adult ESL*" OR "Adult ESOL*" OR "Adult English for Speakers of Other Language*" OR "Adult literacy" OR "Low-literacy adult*" OR "Low* skilled adult*" OR "Adult* with limited education" OR "Adult* with limited literacy" OR "High school dropout*" OR "high school drop out*" OR "Early school leaver*" OR "Disconnected youth*" OR "Out-of-school youth**"
Outcomes <i>Terms to identify references that report on measures that align with primary indicators of performance of Title II programs</i>	Employment OR Earnings OR "Labor market" OR Credential* OR "Carnegie unit*" OR "Course credit*" OR "education* credit*" OR "credit attain*" OR "high school diploma*" OR "High school equivalen*" OR "Secondary school equivalen*" OR "Secondary school diploma*" OR "Grade level*" OR "Functioning level*" OR Transcript* OR "Report card*" OR "education* goal*" OR "education* milestone*" OR "education* exam*" OR Persistence OR "Staying in program" OR "Postsecondary transition" OR "Postsecondary enrollment" OR "Basic skill*" OR "English language skill*" OR "Oral skill*" OR "Written skill*" OR "Academic achievement" OR "academic attainment" OR Literacy OR Reading OR "Word reading" OR Fluency OR Vocabulary OR Comprehension OR Numeracy OR "Math* skill**" OR "math* achievement" OR "math* gain*" OR "Functional skill**" OR "Workplace skill**" OR "Occupational skill*" OR "Critical thinking" OR "Digital literacy" OR "Self-management" OR "OJT" OR "On the job training" OR apprentic* OR "trade benchmark*" OR "trade-related benchmark**" OR "measurable skill**"
Strategy tested (Referred to as Intervention by WWC) <i>Terms to identify references that report on strategies</i>	Curricul* OR program* OR intervention OR implement* OR demonstration* OR pilot* OR strateg* OR approach* OR practice OR model* OR policy OR policies OR experiment OR initiative OR training
Evaluation <i>Terms to identify references that report on whether strategies were assessed for effectiveness</i>	analys* OR assess* OR compar* OR estimat* OR evaluat* OR evidence OR examin* OR "literature review" OR measur* OR "meta analys**" OR metaanalys* OR predict* OR "systematic review" OR varia*
Analysis <i>Terms to identify references that report on whether strategies were effective</i>	Affect* OR Benefit* OR Declin* OR Decreas* OR Develop* OR Effect* OR Efficac* OR Gain OR Growth OR Higher OR Increas* OR Impact* OR Improv* OR Lower OR Progress OR Reduc* OR Statistic* OR Success*

Search a large set of databases and websites to identify publicly available literature.

In March 2019, searches were conducted for publicly available literature—in the electronic databases and websites listed in Table A.3. These sources include those listed in Appendix B of the WWC Procedures Handbook as well as additional sources identified by the field as being relevant to adult education.

Table A.3 Databases and websites searched

Source	Database or website
Appendix B.2 of WWC Procedures Handbook	Academic Search Premier, EconLit, Education Research Complete, E-Journals, ERIC, ProQuest Dissertations & Theses, PsycINFO, SAGE Journals Online, Scopus, SocINDEX, WorldCat
Appendix B.3 of WWC Procedures Handbook	Abt Associates, Alliance for Excellent Education, American Education Research Association, American Enterprise Institute, American Institutes of Research, Best Evidence Encyclopedia, Brookings Institution, Carnegie Corporation of New York, Center for Research and Reform in Education, Congressional Research Service, Government Accountability Office, Grants/contracts awarded by the Institute of Education Sciences, Heritage Foundation, Hoover Institution, Mathematica, MDRC, National Association of State Boards of Education, National Governors Association, Policy Archive, Policy Study Associates, RAND, Regional Educational Laboratories, SRI, Thomas B. Fordham Institute, Urban Institute
Appendix B.4 of WWC Procedures Handbook	Campbell Collaboration, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, Council for Learning Disabilities, Database of Abstracts of Reviews of Effects, Florida Center for Reading Research, Harvard Family Research Project, Institute for Higher Education Policy, Institute for Public Policy and Social Research, Learning Disabilities Association of America, Linguistic Society of America, Natl. Association for Bilingual Education, Natl. Association of State Directors of Career Tech. Ed., Natl. Association of State Directors of Special Education, Natl. Autism Center - National Standards Project, Natl. Center for Learning Disabilities, Natl. Center on Response to Intervention, Natl. Center on Secondary Education and Transition, Natl. College Access Network, Natl. Dropout Prevention Center/Network, National Bureau of Economic Research Working Papers, Teachers of English to Speakers of Other Languages
Additional adult education sources recommended by experts in the field	Adult Basic Education Teaching & Learning System (ATLAS), Barbara Bush Foundation, Center for Applied Linguistics, Center for Study of Adult Literacy, Center for Law and Social Policy, (CLASP), Coalition on Adult Basic Education, Community College Research Center, Council for Adult and Experiential Learning, Council for Advancement of Adult Literacy, City University of New York (CUNY)/LaGuardia Community College, Dollar General Literacy Foundation, Education Testing Services, Gates Foundation, GED Testing Service, Goodling Institute, Harvard University Graduate School Education, Institute for Study of Adult Literacy, Jobs for the Future, Literacy Education and Second Language Learning for Adults, Literacy Information Network Communication System (LINCS), Lumina Foundation, Migration Policy Institute, National Association for Adults with Special Learning Needs (NAASLN), National Center for the Study of Adult Learning and Literacy (NCSALL), National Coalition for Literacy (NCL), National College Access Network, National College Transition Network (NCTN), National Council of State Directors of Adult Education (NCSDAE), National Skills Coalition, U.S. Department of Education, Office of Career & Technical Education (OCTAE) Resources, Portland State University/Longitudinal Study of Adult Learning, RTI International, University of Kansas Center for Research on Learning Division of Adult Studies, University of Tennessee, Center for Literacy, Education, & Employment (CLEE), VALUEUSA, Washington State Board for Community and Technical Colleges, World Education

Request that researchers, practitioners, and policymakers also submit relevant studies.

Researchers, practitioners, and policymakers in adult education were asked to identify research studies they thought might be relevant. This step was taken to help identify research that might not show up as readily in searches of electronic databases.

A.4. Screening and Reviewing Studies

References identified through the searches were first screened to determine whether they were indeed about adult education. If the references were relevant, they were then further screened to determine whether they met the other eligibility requirements described previously. The eligible references were then reviewed to determine whether they conformed to the WWC's standards of rigor.

Screen references using the What Works Clearinghouse's systematic procedures to identify eligible studies.

References identified through the broad literature search were screened for eligibility by WWC-certified staff.

Short abstracts were obtained for all references identified in the literature search. These abstracts were then screened to determine which ones fell within the scope of the review effort and were therefore eligible for review. Abstracts that clearly were not eligible (for example, not relevant to adult education) were screened out. When additional information was required to make an eligibility determination, the screeners read through the full text of the reference to determine eligibility. When they were unsure of eligibility, they flagged a study for a more senior staff person to review.

Although many references were identified through the broad literature search, few examined the impacts of strategies in adult education.

The broad literature search yielded 4,199 references, which included journal articles, reports, conference proceedings, dissertations, and theses. Almost half (45 percent) of the references were screened out because they were not relevant to adult education. Of those still relevant, others were screened out because they were not research studies but rather newspaper articles or blog posts (38 percent), did not examine the effectiveness of an eligible adult education strategy (34 percent), and/or did not use an eligible research design (15 percent). Another 10 percent were screened out for some other reason (for example, sample member characteristics, outcomes, location, or a publication date did not fit review criteria). Only about three percent of the relevant studies examined the impacts of strategies in adult education on improving the academic skills, educational progress, employment or earnings of learners.

Some of the eligible references reported on the same evaluation, whereas others reported on multiple evaluations.

In some cases, multiple references reported on findings from the same evaluation. For example, one reference may have reported on one-year impacts and another on two-year impacts. Because these references were reporting on findings from the same evaluation, they were considered together as a

single study (following WWC procedures). In other cases, a reference may have reported on multiple evaluations. This occurred, for example, if study authors examined more than two groups of individuals and each group received a different strategy, or in some cases, no strategy. In an example of three groups: Strategy A, Strategy B, and a group that received no strategy, each comparison that the authors made between these three groups - Strategy A versus no strategy, Strategy B versus no strategy, Strategy A versus Strategy B - was considered a separate study. After applying the WWC's definition of a study, 54 studies were determined to be eligible and assigned for review.

Review studies using the What Works Clearinghouse's systematic procedures to identify rigorous evidence.

Studies were reviewed by WWC-certified staff and recorded in the WWC's online study review guide.

The review used the Review of Individual Studies Protocol (RISP) version 4.0 because the WWC did not have a review protocol specific to adult education. The RISP is a broad, flexible review protocol that includes a wide range of outcomes, many relevant to adult education.

Each of the 54 studies was assigned to at least one certified reviewer who reviewed the study using the RISP version 4.0 and the WWC Standards Handbook version 4.0. Reviewers recorded their review, including details of the study and methods used, such as the way in which sample members were assigned to receive the strategy being tested or not, any attrition or data missing for sample members, and whether groups were similar at the start of the study in the WWC's online study review guide (OSRG). Each eligible analysis, or comparison in a study was reviewed against WWC standards and received one of three WWC study ratings: Meets WWC standards without reservations, Meets WWC standards with reservations, and Does not meet WWC standards.

A study was independently reviewed by a second certified reviewer if the first reviewer indicated that (1) the study did not meet standards but a senior researcher, also known as a reconciler disagreed or (2) if the first reviewer indicated that the study met WWC standards, or could meet standards with more data provided by the study author.

When some information needed to determine a study rating was missing, authors were contacted with a request to provide the needed information. These requests did not ask authors to perform new or additional analyses. All information received through an author query was documented in the OSRG. Reconcilers, were responsible for helping to draft any author queries, ensuring that the standards were applied correctly throughout the review, confirming the study's rating, resolving any discrepancies between reviewers, and creating a final record in the OSRG.

The WWC applies one of three study ratings to each eligible study:

Meets WWC standards without reservations: The WWC has a high degree of confidence in at least one of the study's findings regarding the effects of the strategy being tested.

Meets WWC standards with reservations: The WWC has a medium degree of confidence in at least one of the study's findings regarding the effects of the strategy being tested.

Does not Meet WWC standards: The WWC does not have confidence in the study's findings regarding the effects of the strategy being tested.

Source: Adapted from the What Works Clearinghouse Glossary.
<https://ies.ed.gov/ncee/wwc/Glossary>

Twenty-two studies met WWC design standards with or without reservations. In all 22, study authors compared the outcomes of participants who were in a group offered an adult education strategy (referred to by WWC as the intervention or treatment group) to the outcomes of a group that was not offered that same adult education strategy (referred to by WWC as the comparison group). In some cases, the comparison group may have received a set of services different from those provided to the treatment group; in others, a comparison group may not have received any services. Eleven studies received the WWC's highest rating of "meets standards without reservations"—because they were well-executed randomized controlled trials. The other 11 studies met standards with reservations.² Many of these studies were quasi-experimental designs, in which the research groups were determined to be similar before receiving the strategy.

When available, information was recorded for subgroups.

As part of the review process, reviewers recorded information about subgroups, when available. Subgroups may be important to consider because, although a strategy may not work for everyone, it may work for some groups of individuals. A major emphasis of WIOA is to examine whether strategies are effective for learners with particular barriers to employment. Thus, reviewers recorded information, if available, for subgroups defined by the following:

- Barriers to employment—displaced homemakers; eligible migrant and seasonal farmworkers; ex-offenders; homeless individuals; Native Americans, Alaska Natives, and Native Hawaiians; individuals with disabilities, including those in receipt of Social Security Disability Insurance; individuals within two years of exhausting lifetime Temporary Assistance for Needy Families (TANF) eligibility; long-term unemployed individuals (unemployed for 27 or more consecutive weeks); low-income individuals; older individuals (55 years and older); single parents (including single pregnant women); disconnected youth (youth between ages 16 and 24 who are out of school and work); English language learners
- Demographics—gender, age, race/ethnicity
- Baseline skill level—literacy, numeracy, English language skills

All eligible findings were designated as main or supplemental findings following WWC procedures. Only main findings are reported in the evidence review snapshot and Appendix B.

The WWC Procedures Handbook version 4.0 provides guidance to reviewers when determining whether findings should be considered as main or supplemental. This determination depends first on which analyses meet WWC standards. Generally, main findings are based on the full sample of participants and use the most aggregate measure of the outcome measure, for example a full-scale score instead of individual subscale scores. Further, the RISP version 4.0 considers findings based on data collected closest to the end of the exposure to the strategy as main, and for some types of outcomes, such as educational attainment and labor market, the RISP considers both the shortest and

² In cases where different analyses received different ratings, the overall WWC study rating was the highest rating across them. This approach reflects the credibility of evidence from the study, per the version 4.0 Procedures Handbook.

longest follow-up findings as main in separate short-run and long-run outcome domains. Other findings are considered supplemental.

In addition to documenting the main findings, reviewers also entered data into the OSRG on all other eligible supplemental outcomes reported by authors. The most common supplemental outcomes were additional time points not prioritized as main findings per the RISP. All findings, both main and supplemental, can be found by searching the WWC's Reviews of Individual Studies, available through the WWC's website.

A.5. Summarizing and Characterizing Findings

Summarize RISP outcome domains within four key areas of adult education learner outcomes: academic skills, educational progress, employment, and earnings.

The RISP protocol, which was designed to be flexible to accommodate studies in a wide range of education areas, includes many outcome groups, referred to as domains. Many of these domains are relevant to adult education. Table A.4 lists the 16 outcome domains that contained at least one main finding that met standards across all reviewed studies. In the evidence review snapshot, these 16 outcome domains were summarized within four key areas of adult education learner outcomes—academic skills, educational progress, employment, and earnings. Table A.4 maps the RISP outcome domains to these four areas of outcomes. The WWC's Reviews of Individual Studies, available through the WWC's website, contains the full review of each of the reviewed studies, including the full array of RISP domains.

Table A.4. Mapping of RISP outcome domains to adult education outcome areas: academic skills, educational progress, employment, and earnings

RISP version 4.0 domains	Adult education outcome areas
Alphabetics, comprehension, reading fluency, general mathematics, literacy achievement, and English language proficiency	Academic skills
Progressing in college, industry-recognized credential, certificate, or license (short-run), college enrollment, completing high school (short-run), college degree attainment (short- and long-run)	Educational progress
Employment (short- and long-run)	Employment
Earnings (short- and long-run)	Earnings

Characterize study findings on the four key areas of learner outcomes using What Works Clearinghouse procedures.

To simplify the summary of study findings, findings on academic skills, educational progress, employment, and earnings were characterized as a (i) statistically significant positive effect, (ii) substantively important positive effect, (iii) indeterminate effect, (iv) substantively important negative effect, or (v) statistically significant negative effect. These classifications follow the WWC's characterization of findings within a domain for individual studies as laid out in the WWC Procedures Handbook version 4.0. Tables IV.1 and IV.2 in the Procedures Handbook were used to characterize the findings of an effect based on the direction (positive, negative, indeterminate), and strength of outcome

findings as measured by the estimated effect size in standard deviation units. Under version 4.0, the WWC considered effect sizes of 0.25 standard deviations or larger as substantively important.

The characterization also accounted for any necessary multiple comparisons corrections, following WWC procedures. If authors examined multiple outcomes within a RISP outcome domain, for example, multiple tests of reading fluency within the reading fluency outcome domain, the Benjamini-Hochberg (BH) correction was used to account for multiple comparisons. This correction guards against observing spurious impact findings, and thus mistakenly concluding that there were differences between groups when authors conducted multiple tests of outcomes within the same domain. When summarizing the RISP outcome domains within the four key areas of adult learner outcomes, no additional corrections for multiple comparisons were made.

A.6. Reporting Findings

Simplify the characterization of findings to positive, negative, no effect, or mixed effects.

For reporting purposes, the five possible WWC characterizations of findings were simplified to positive effects, negative effects, no effects, and mixed effects (Table A.5). Only statistically significant effects were categorized as positive or negative. For example, the WWC characterization of a ‘Statistically significant positive effect’ was simplified to a “Positive effect” for this review. Substantively important effects, that is impacts with an effect size of .25 or greater but that were not statistically significant, were treated as no effects because large effect sizes from studies with small samples are not necessarily informative about the effect that may be observed in a study that uses a larger sample; this is consistent with the direction the WWC has moved in treating effects that are not significant.³ The WWC’s ‘Indeterminate effect’ characterization was split into ‘No effect’ if the finding(s) within a domain or outcome area were not statistically significant or ‘Mixed effects’ if the findings included both statistically significant positive and negative effects.

Table A.5. Final characterization of findings

What Works Clearinghouse characterization of findings from the version 4.0 Procedures Handbook	Adult education evidence review characterization of findings
Statistically significant positive effect	Positive effect
Substantively important positive effect	No effect
Indeterminate effect	No effect ^a Mixed effects ^b
Substantively important negative effect	No effect
Statistically significant negative effect	Negative effect

^a “No effect” indicates that the finding(s) within a domain or outcome area were not statistically significant.

^b “Mixed effect” indicates the findings within a domain or outcome area include both statistically significant positive and statistically significant negative effects.

³ Under the WWC’s 4.1 Standards and Procedures Handbooks that were released after this review was conducted, the substantively important characterizations were removed. Thus, effect sizes are only characterized by their sign and statistical significance, consistent with the approach taken for this evidence review.

The evidence review snapshot reports the characterizations of findings at the level of the adult education outcome areas, while Appendix B includes characterizations of findings for the RISP outcome domains. For example, consider a study that measured alphabetics, comprehension, and reading fluency, which all fall into the academic skills outcome area. The snapshot would report a single characterization for the academic skills outcome area, while Appendix B would include the characterizations for each of these RISP outcomes.

Organize findings using adult education categories and sample strategies.

The report organizes findings using a field-informed structure to identify categories of adult education strategies for which rigorous evidence does and does not exist (Exhibit A.1). In addition, this structure was used to identify whether findings were consistent within categories and strategies.

Appendix B.

Details of Reviewed Studies

This appendix contains information about the studies that were reviewed, which are those studies that made it through the screening process. References are included for each of the 54 studies that were reviewed, along with the WWC rating each study received and the reason for the rating. For the 22 studies that met WWC standards, summaries about the strategies tested and technical details of the study design are also provided. While some technical terms are defined in Exhibit B.1 this appendix was written for an audience with familiarity in research design.

Exhibit B.1. Terms and definitions used in the details of reviewed studies

- **WWC study rating:** One of three ratings that the WWC applies to a study. Each study was assigned the highest rating earned across all eligible analyses. The rating reflects the credibility of evidence from the study, per the version 4.0 Procedures Handbook. The three ratings are:
 - Meets WWC standards without reservations: The WWC has a high degree of confidence in at least one of the study's findings regarding the effects of the strategy being tested
 - Meets WWC standards with reservations: The WWC has a medium degree of confidence in at least one of the study's findings regarding the effects of the strategy being tested
 - Does not meet WWC standards: The WWC does not have confidence in the study's findings regarding the effects of the strategy being tested.
- **Setting:** Where the study took place, including the geographic location and specific environment like a classroom.
- **Methods:** The procedures researchers used to examine whether a strategy was effective. This often includes details of the research design including the way in which participants were assigned to receive the strategy being tested or not.
- **Eligible research designs:** Methods from which conclusions about effectiveness can be drawn and for which WWC standards and procedures can be applied.
 - Randomized controlled trial (RCT): When individuals or clusters of individuals in a study are randomly assigned to either receive the strategy being tested or not receive the strategy through a process like a lottery or coin toss. The groups are then compared to determine if the strategy was effective at improving outcomes like skills, educational progress, employment, and earnings.
 - Quasi-experimental design (QED): When decisions, about which individuals or clusters of individuals in a study receive the strategy being tested, are made using a process that is not random. The groups are then compared to determine if the strategy was effective at improving outcomes.
 - Regression Discontinuity Design (RDD): When individuals are assigned to receive a strategy or not based on a specific threshold on a continuous scale (such as scoring above a cut-off number on an achievement test). The groups are then compared to determine if the strategy was effective at improving outcomes.
 - Single-Case Design (SCD): When individuals receive the strategy being studied some, but not all the time. Outcomes for the individual are measured at multiple times, both when they are receiving the strategy and not, to determine if the presence of the strategy improved their outcomes.
- **Study sample:** Participants in a study, including the learners and/or classrooms that received and did not receive the strategy being tested.
- **Treatment group:** Group offered the adult education strategy that was being tested. The WWC also refers to this as the intervention group.
- **Comparison group:** Group that was not offered the adult education strategy being tested.
- **Outcomes:** Results that are measured to determine if the strategy was effective.
- **Implementation:** How a strategy is carried out, including information about how it was provided to sample members.

Source: Adapted from the What Works Clearinghouse Glossary. <https://ies.ed.gov/ncee/wwc/Glossary>

B.1. References for all Studies Reviewed

This section lists the references for all 54 studies that meet review eligibility requirements following the What Works Clearinghouse (WWC) Standards and Procedures Handbooks and Review of Individual Studies Protocol version 4.0. Key requirements are that the study examined the effectiveness of an eligible adult education strategy using an eligible research design, that is, a design that provides evidence that observed impacts are due to the strategy being tested. All the requirements are described in Appendix A.

The references are organized by their WWC rating, which is based on the highest rating assigned to any analysis reported in the study. The WWC rating indicates the degree of confidence that any effect observed was due to the strategy tested. This section also includes the reason for the rating, which is based on technical aspects of the research design. There is not always a one-to-one alignment between a study and a reference (see Appendix A). For instance, a single study could be described in multiple references, in which case additional references are listed as an additional source. Also, a single reference could report on multiple studies, in which case a separate rating was determined and reported for each study.

Meets WWC standards without reservations

Batchelder, J. S., & Rachal, J. R. (2000a). Efficacy of a computer-assisted instruction program in a prison setting: An experimental study. *Adult Education Quarterly*, 50(2), 120-133. (Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.)

Additional source:

Batchelder, J. S., & Rachal, J. R. (2000b). Effects of a computer-assisted instruction program in a prison setting: An experimental study. *Journal of Correctional Education*, 51(4), 324-332.

Condelli, L., Cronen, S., Bos, J., Tseng, F., & Altuna, J. (2010). *The impact of a reading intervention for low-literate adult ESL learners (NCEE 2011-4003)*. U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance.
<https://ies.ed.gov/ncee/pubs/20114003/pdf/20114003.pdf> (Meets WWC standards without reservations. The study is a cluster randomized controlled trial with low attrition at the cluster and individual levels.)

Cook, R., Hamadyk, J., Zeidenberg, M., Rolston, H., & Gardiner, K. (2018). *Madison Area Technical College Patient Care Pathway program: Implementation and early impact report (OPRE Report No. 2018-48)*. U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation. (Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.)

Additional source:

Cook, R., Hamadyk, J., Zeidenberg, M., Rolston, H., & Gardiner, K. (2018). Madison Area Technical College Patient Care Pathway program: Implementation and early impact report (appendices) (OPRE Report No. 2018-48). U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation.

Glosser, A., Martinson, K., Cho, S. W., & Gardiner, K. (2018). *Washington State's Integrated Basic Education and Skills Training (I-BEST) program in three colleges: Implementation and early impact report* (OPRE Report No. 2018-87). U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation. (Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.)

Additional source:

Glosser, A., Martinson, K., Cho, S. W., & Gardiner, K. (2018). Washington State's Integrated Basic Education and Skills Training (I-BEST) program in three colleges: Implementation and early impact report (appendices) (OPRE Report No. 2018-87). U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation.

Gray, S. H., Ehri, L. C., & Locke, J. L. (2018). Morpho-phonemic analysis boosts word reading for adult struggling readers. *Reading & Writing*, 31(1), 75–98. (Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.)

Hamadyk, J., & Zeidenberg, M. (2018). *Des Moines Area Community College Workforce Training Academy Connect Program: Implementation and early impact report* (OPRE Report No. 2018-82). U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation. (Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.)

Additional source:

Hamadyk, J., & Zeidenberg, M. (2018). Des Moines Area Community College Workforce Training Academy Connect Program: Implementation and early impact report (appendices) (OPRE Report No. 2018-82). Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation.

Hock, M. F., & Mellard, D. F. (2011). Efficacy of learning strategies instruction in adult education. *Journal of Research on Educational Effectiveness*, 4(2), 134-153. (This reference included four separate studies and each study received its own review and rating. Only one of these studies received the Meets WWC standards without reservations rating.)

Study 1: Summarization Strategy. (Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.)

Martin, V., & Broadus, J. (2013). Enhancing GED instruction to prepare students for college and careers: Early success in LaGuardia Community College's Bridge to Health and Business Program. MDRC. (Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.)

Miller, C., Millenky, M., Schwartz, L., Goble, L., & Stein, J. (2016). *Building a future: Interim impact findings from the YouthBuild evaluation*. MDRC. (Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.)

Additional sources:

Miller, C., Cummings, D., Millenky, M., Wiegand, A., & Long, D. (2018). *Laying a foundation: Four-year results from the national YouthBuild evaluation*. MDRC.

Wiegand, A., Manno, M., Leshnick, S., Treskon, L., Geckeler, C., Lewis-Charp, H, ... Nicholson, B. (2015). *Adapting to local context: Findings from the YouthBuild evaluation implementation study*. MDRC.

Modicamore, D., Lamb, Y., Taylor, J., Takyi-Laryea, A., Karageorge, K., & Ferroggiaro, E. (2017). *Accelerating connections to employment. Vol. I. Final evaluation report*. ICF. (Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.)

Additional source:

Modicamore, D., Lamb, Y., Taylor, J., Takyi-Laryea, A., Karageorge, K., & Ferroggiaro, E. (2017). *Accelerating connections to employment. Vol. II. Final evaluation report appendices*. ICF.

Robinson, S. A. (2018). A study designed to increase the literacy skills of incarcerated adults. *Journal of Correctional Education*, 69(1), 60-72. (Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.)

Meets WWC standards with reservations

Alamprese, J., MacArthur, C., Price, C., & Knight, D. (2011). Effects of a structured decoding curriculum on adult literacy learners' reading development. *Journal of Research on Educational Effectiveness*, 4(2), 154-172. (This reference included two separate studies and each study received its own review and rating.)

Study 1: Making Sense of Decoding and Spelling (Meets WWC standards with reservations. The study is a cluster randomized controlled trial with high individual-level attrition, and the groups of learners were shown to be similar at the start of the study.)

Study 2: K-3 curriculum adapted for adult learners (Meets WWC standards with reservations. The study used a cluster quasi-experimental design, and the groups of learners were shown to be similar at the start of the study.)

Anderson, T., Kuehn, D., Eyster, L., Barnow, B., & Lerman, R. (2017). *New evidence on integrated career pathways: Final impact report for Accelerating Opportunity*. Urban Institute. (Meets WWC standards with reservations. The study used a quasi-experimental design, and the groups of learners were shown to be similar at the start of the study.)

Additional sources:

Anderson, T., Eyster, L., Lerman, R., Clymer, C., Conway, M., & Montes, M. (2014). *The first year of Accelerating Opportunity: Implementation findings from the states and colleges*. Urban Institute. <http://www.urban.org/research/publication/first-year-accelerating-opportunity-implementation-findings-states-and-colleges>

Anderson, T., Eyster L., Lerman, R., O'Brien, C., Conway, M., Jain, R., & Montes, M. (2015). *The second year of Accelerating Opportunity: Implementation findings from the states and colleges*. Urban Institute. <http://www.urban.org/research/publication/second-year-accelerating-opportunity-implementation-findings-states-and-colleges>

Anderson, T., Eyster L., Lerman, R., O'Brien, C., Conway, M., Jain, R., & Montes, M. (2016). *Implementation of Accelerating Opportunity: Lessons from the field*. Urban Institute. <http://www.urban.org/research/publication/implementation-accelerating-opportunity-final-implementation-findings-lessons-field>

Eyster, L., Anderson, T., Lerman, R., Kuehn D., Barnow, B., Conway, M., ... Montes, M. (2018). *Findings from the Accelerating Opportunity evaluation: Building the evidence on integrated career pathways*. Urban Institute.

Greenberg, D., Wise, J., Morris, R., Fredrick, L., Nanda, A., & Hye-K., P. (2011). A randomized control study of instructional approaches for struggling adult readers. *Journal of Research on Educational Effectiveness*, 4(2), 101-117. doi:10.1080/19345747.2011.555288 (This reference included four separate studies and each study received its own review and rating.)

Study 1: Decoding and Fluency (Meets WWC standards with reservations. The study is a compromised randomized controlled trial, and the groups of learners were shown to be similar at the start of the study.)

Study 2: Decoding, Comprehension, and Fluency (Meets WWC standards with reservations. The study is a compromised randomized controlled trial, and the groups of learners were shown to be similar at the start of the study.)

Study 3: Decoding, Comprehension, Fluency, and Extensive Reading (Meets WWC standards with reservations. The study is a compromised randomized controlled trial, and the groups of learners were shown to be similar at the start of the study.)

Study 4: Extensive Reading (Meets WWC standards with reservations. The study is a compromised randomized controlled trial, and the groups of learners were shown to be similar at the start of the study.)

Additional source:

Rodrigo, V., Greenberg, D., & Segal, D. (2014). Changes in reading habits by low literate adults through extensive reading. *Reading in a Foreign Language*, 26(1), 73-91.

Hock, M. F., & Mellard, D. F. (2011). Efficacy of learning strategies instruction in adult education.

Journal of Research on Educational Effectiveness, 4(2), 134-153. (This reference included four separate studies and each study received its own review and rating. Only one of these studies received the Meets WWC standards with reservations rating.)

Study 2: Prediction Strategy (Meets WWC standards with reservations. The study is a randomized controlled trial with high attrition, and the groups of learners were shown to be similar at the start of the study.)

Sabatini, J. P., Shore, J., Holtzman, S., & Scarborough, H. S. (2011). Relative effectiveness of reading intervention programs for adults with low literacy. *Journal of Research on Educational Effectiveness*, 4(2), 118-133. (This reference included three separate studies and each study received its own review and rating.)

Study 1: Corrective Reading (Meets WWC standards with reservations. The study is a compromised randomized controlled trial, and the groups of learners were shown to be similar at the start of the study.)

Study 2: Guided Reading (Meets WWC standards with reservations. The study is a compromised randomized controlled trial, and the groups of learners were shown to be similar at the start of the study.)

Study 3: RAVE-O (Meets WWC standards with reservations. The study is a compromised randomized controlled trial, and the groups of learners were shown to be similar at the start of the study.)

Additional source:

Scarborough, H. S., Sabatini, J. P., Shore, J., Cutting, L. E., Pugh, K., & Katz, L. (2013). Meaningful reading gains by adult literacy learners. *Reading and Writing: An Interdisciplinary Journal*, 26(4), 593-613.

Does not meet WWC standards

Alewine, H. S. (2010). Andragogical methods and readiness for the correctional GED classroom. *Journal of Correctional Education*, 61(1), 9-22. (Does not meet WWC standards. The measures of effectiveness cannot be attributed solely to the intervention.)

Autrey, J. H. (1999). Effects of direct instruction and precision teaching on achievement and persistence of adult learners (Doctoral dissertation). http://digitalcommons.wayne.edu/oa_dissertations/1763 (Does not meet WWC standards. The measures of effectiveness cannot be attributed solely to the intervention.)

Berry, A. B., & Mason, L. H. (2012). The effects of self-regulated strategy development on the writing of expository essays for adults with written expression difficulties: Preparing for the GED. *Remedial and Special Education*, 33(2), 124-136. (Does not meet WWC pilot single-case design standards. The study had insufficient data to evaluate the attempts to demonstrate an intervention effect.)

Bingham, M. J. (2002). *Effects of computer-assisted instruction versus traditional instruction on adult GED student TABE scores (Doctoral dissertation)*. ProQuest Dissertations and Theses database. (UMI No. 3049561) (Does not meet WWC standards. The study used a quasi-experimental design and the groups of learners are not shown to be similar at the start of the study.)

Blackmer, R., & Hayes-Harb, R. (2016). Identifying effective methods of instruction for adult emergent readers through community-based research. *Journal of Research and Practice for Adult Literacy, Secondary, and Basic Education*, 5(2), 35-49. (Does not meet WWC standards. The study used a quasi-experimental design and the groups of learners are not shown to be similar at the start of the study.)

Frazier Varner, D. (2010). *Effect of instructional design on academic success of adult basic education learners: Individualized versus group design (Doctoral dissertation)*. ProQuest Dissertations and Theses database. (UMI No. 3398862) (Does not meet WWC standards. The study used a quasi-experimental design and the groups of learners are not shown to be similar at the start of the study.)

Grafals, Z. (2013). *English learning predictors of listening and speaking self-efficacy for adult second language learners (Doctoral dissertation)*. ProQuest Dissertations and Theses database. (UMI No. 3572507) (Does not meet WWC standards. The study used a quasi-experimental cluster design and the clusters are not shown to be similar at the start of the study.)

Hock, M. F., & Mellard, D. F. (2011). Efficacy of learning strategies instruction in adult education. *Journal of Research on Educational Effectiveness*, 4(2), 134-153. (This reference included four separate studies and each study received its own review and rating. Only two of these studies received the Does not meet WWC standards rating.)

Study 3: Bridging Strategy (Does not meet WWC standards. The study is a randomized controlled trial with high attrition and the groups of learners are not shown to be similar at the start of the study.)

Study 4: Fluency Strategy (Does not meet WWC standards. The study is a randomized controlled trial with high attrition and the groups of learners are not shown to be similar at the start of the study.)

Huang, J., & Newbern, C. (2012). The effects of metacognitive reading strategy instruction on reading performance of adult ESL learners with limited English and literacy skills. *Journal of Research and Practice for Adult Literacy, Secondary, and Basic Education*, 1(2), 66-77. (Does not meet WWC standards. The measures of effectiveness cannot be attributed solely to the intervention.)

Jenkins, D., Zeidenberg, M., & Kienzl, G. (2009). *Educational outcomes of I-BEST, Washington State Community and Technical College System's Integrated Basic Education and Skills Training program: Findings from a multivariate analysis*. (CCRC Working Paper No. 16). Columbia University, Teachers College, Community College Research Center. (This reference included two separate studies and each study received its own review and rating.)

Study 1: Difference-in-difference analyses (Does not meets WWC standards. The study used a quasi-experimental cluster design and the clusters are not shown to be similar at the start of the study.)

Study 2: Ordinary least squares or unadjusted means (Does not meet WWC standards. The study used a quasi-experimental design and the groups of learners are not shown to be similar at the start of the study.)

Additional source:

Zeidenberg, M., Cho, S., & Jenkins, D. (2010). Washington State's Integrated Basic Education and Skills Training program (I-BEST): New evidence of effectiveness (CCRC Working Paper No. 20). Columbia University, Teachers College, Community College Research Center.

Jolly, K. F. M. (2000). The effects of the use of the writing process on the reading comprehension skills of rural adult basic education students (Doctoral dissertation). ProQuest Dissertations and Theses database. (UMI No. 9984536) (Does not meet WWC standards. The measures of effectiveness cannot be attributed solely to the intervention.)

Kim, Y. (2008). The role of task-induced involvement and learner proficiency in L2 vocabulary acquisition. *Language Learning*, 58(2), 285-325. (This reference included four separate studies and each study received its own review and rating.)

Study 1: Composition (Does not meets WWC standards. The study is a compromised randomized controlled trial and the groups of learners are not shown to be similar at the start of the study.)

Study 2: Gap-fill (Does not meets WWC standards. The study is a compromised randomized controlled trial and the groups of learners are not shown to be similar at the start of the study.)

Study 3: Reading (Does not meets WWC standards. The study is a compromised randomized controlled trial and the groups of learners are not shown to be similar at the start of the study.)

Study 4: Sentence Writing (Does not meets WWC standards. The study is a compromised randomized controlled trial and the groups of learners are not shown to be similar at the start of the study.)

Klinghoffer, C. L. (2008). *Situational dialogues in a community college: English as a second language curriculum* (Doctoral dissertation). <https://files.eric.ed.gov/fulltext/ED504218.pdf> (Does not meet WWC standards. The measures of effectiveness cannot be attributed solely to the intervention.)

Krause, T. (2018). Using VocabularySpellingCity with adult ESOL students in community college. *ORTESOL Journal*, 35, 43-46. (Does not meet WWC standards. The study used a quasi-experimental design and the groups of learners are not shown to be similar at the start of the study.)

Ksoll, C., Aker, J., Miller, D., Perez, K., & Smalley, S. (2014). *Learning without teachers? A randomized experiment of a mobile phone-based adult education program in Los Angeles* (CGD Working Paper 368). Center for Global Development. <https://www.cgdev.org/publication/learning-without-teachers-randomized-experiment-mobile-phone-based-adult-education> (Does not meet WWC standards. The study includes only outcomes for which the measures were collected differently for subjects in the intervention and comparison groups.)

Lynch, E. M. (2016). Faith is confidence: The implication of psychosocial components in faith-based educational programs on expressive communication skills of adult learners. *Journal of Research on Christian Education*, 25(2), 169-187. (Does not meet WWC standards. The study used a quasi-experimental cluster design and the clusters are not shown to be similar at the start of the study.)

Maisak, N. (2017). *Transitioning students from adult education to postsecondary education through co-enrollment career pathways model* (Doctoral dissertation). ProQuest Dissertations and Theses database. (UMI No. 10619502) (Does not meet WWC standards. The study used a quasi-experimental design and the groups of learners are not shown to be similar at the start of the study.)

Massengill, D. (2003). Guided reading—An instructional framework for adults. *Adult Basic Education*, 13(3), 168-188. (Does not meet WWC pilot single-case design standards. The study had insufficient data to evaluate the attempts to demonstrate an intervention effect.)

Additional source:

Massengill, D. (2004). The impact of using guided reading to teach low-literate adults. *Journal of Adolescent & Adult Literacy*, 47(7), 588-602.

Patterson, M. B. (2016). “A big and excellent opportunity for my future”: Adult Learner Leadership in Education Services (ALLIES) evaluation year 1 survey, assessment, observation, and program information findings. VALUEUSA. (Does not meet WWC standards. The study is a compromised cluster randomized controlled trial and the clusters are not shown to be similar at the start of the study.)

Additional sources:

Patterson, M. B. (2016). ALLIES final year leadership report: Part 1, Key quantitative findings. VALUEUSA.

Patterson, M. B. (2017). Adult Learner Leadership in Education Services: What VALUEUSA learned about learners as leaders. *Journal of Research and Practice for Adult Literacy, Secondary, and Basic Education*, 6(3), 35-49.

Paulson, U., & Patterson, M. B. (2017). ALLIES final year leadership report: Part 3, Connections of critical thinking measures with learner experiences. VALUEUSA.

Prins, E., Drayton, B., Gungor, R., & Kassab, C. (2010). *GED preparation through distance learning in rural Pennsylvania*. The Pennsylvania State University. (This reference included three separate studies and each study received its own review and rating.)

Study 1: Distance Learning - Blended (Does not meet WWC standards. The study used a quasi-experimental design and the groups of learners are not shown to be similar at the start of the study.)

Study 2: Distance Learning - Pure (Does not meet WWC standards. The study used a quasi-experimental design and the groups of learners are not shown to be similar at the start of the study.)

Study 3: Distance Learning ((Does not meet WWC standards. The study used a quasi-experimental design and the groups of learners are not shown to be similar at the start of the study.)

Additional sources:

Prins, E., Drayton, B., Gungor, R., & Kassab, C. (2011). *GED preparation through distance learning in rural Pennsylvania*. Center for Rural Pennsylvania.

Prins, E., Drayton, B., Gungor, R., & Kassab, C. (2012). Distance learning for GED students in rural Pennsylvania. *American Journal of Distance Education*, 26(4), 217-235.

Reed, T. M. (2014). *Inmate educational program and recidivism rates of violent and nonviolent jail inmates* (Doctoral dissertation). ProQuest Dissertations and Theses database. (UMI No. 3646207) (Does not meet WWC standards. The study used a quasi-experimental design and the groups of learners are not shown to be similar at the start of the study.)

RISE Partnership. (2014). *Wisconsin's Regional Industry Skills Education (RISE) Career Pathway Bridges: An evaluation of Career Pathway Bridge programming in Wisconsin 2012-2014*. Wisconsin Career Pathways. (Does not meet WWC standards. The study used a quasi-experimental design and the groups of learners are not shown to be similar at the start of the study.)

Shaw, D. M., & Berg, M. A. (2008). Effects of a word study intervention on spelling accuracy among low-literate adults. *Adult Basic Education and Literacy Journal*, 2(3), 131-139. (Does not meet WWC standards. The study used a quasi-experimental design and the groups of learners are not shown to be similar at the start of the study.)

Warren, R. D. (2012). *The effect of adaptive confidence strategies in computer-assisted instruction on learning and learner confidence* (Doctoral dissertation).

<https://diginole.lib.fsu.edu/islandora/object/fsu:183178/datastream/PDF/view> (This reference included two separate studies and each study received its own review and rating.)

Study 1: Program Control (Does not meet WWC standards. The eligible outcomes do not meet WWC requirements.)

Study 2: Shared Control (Does not meet WWC standards. The eligible outcomes do not meet WWC requirements.)

B.2. Study Details for the 22 Studies that Met What Works Clearinghouse Standards

Within a study that meets WWC standards, each analysis in the study is judged against WWC standards. Thus, there may be analyses in a study that receive different ratings. Details of the 22 studies that met WWC standards are provided in this section. This information is based largely on descriptions that authors reported and is technical in nature. Exhibit B.1 above contains definitions for some of the terms used. Links to each study's review in the WWC's Review of Individual Studies database are also included in the details below. The Review of Individual Studies database includes details for each study, including findings for each outcome that met WWC standards.

Study details for Alamprese et al. (2011): Making Sense of Decoding and Spelling

Study overview	This study investigated the Making Sense of Decoding and Spelling curriculum, which provided explicit instruction on reading and spelling, which is direct and purposeful instruction focused on these skills. This evidence review considered Alamprese et al. (2011) as two separate studies that examined different approaches to teaching literacy. This profile describes the comparisons between learners who received the Making Sense of Decoding and Spelling (MSDS) curriculum and learners who did not. The profile for the Alamprese et al. (2011) [K-3 curriculum adapted for adult learners] describes the comparisons between learners who received the adapted K-3 curriculum and learners who did not.
Category(ies): Strategy(ies)	Literacy instruction: Explicit instruction on reading and spelling, and curricular materials
WWC rating	Meets WWC standards with reservations. The study is a cluster randomized controlled trial with high individual-level attrition, and the groups of learners were shown to be similar at the start of the study.
Setting	The study took place in 23 adult literacy programs located in 12 states. These programs included 71 reading classes and 34 instructors.
Methods	This study involved both a cluster randomized controlled trial (RCT) and a cluster quasi-experimental design. The RCT component used a lottery to assign programs to either use a curriculum (MSDS) designed for adult learners or to continue their existing reading instruction. Outcomes for learners in these two groups were compared. As part of a quasi-experimental cluster design, the authors also compared the learners in the programs assigned to use MSDS to learners in adult basic education (ABE) programs whose instructors were using a K-3 curriculum adapted for ABE learners.
Study sample	The initial sample consisted of 349 learners. These learners attended an adult literacy program that provided class-based instruction to English-speaking adults at the intermediate level. Sixty-six percent of the learners were female. The race/ethnicity distribution of learners was 35 percent White, 24 percent Hispanic, 20 percent Black, 15 percent Asian, and 6 percent in an unspecified other category. Thirty-five percent were born and educated outside of the United States. Sixty-three percent had low incomes based on the poverty threshold of \$12,000 annual salary. Thirty-one percent were identified as having a learning disability.

Treatment group	<p>The MSDS curriculum was designed specifically for adult learners and used to teach decoding and spelling. Instruction lasted approximately 30 weeks, with classes meeting from one to five days per week. The curriculum includes a review of alphabetic decoding skills and principles and teaches a strategy for decoding multisyllabic words. Instruction was primarily delivered to the whole group in scripted lessons, but lessons include paired- and individual-learner reading practice designed to improve reading speed. Each lesson includes progress monitoring assessments. Instructors were given lesson plans with examples and presentation materials.</p>
Comparison group	<p>There were two comparison groups. In both groups, classes lasted about 30 weeks and met one to five days per week.</p> <p>The authors refer to the first group as the control condition, because a lottery was used to construct this group. Instructors in these programs continued to use their existing reading instruction. These classes did not use a published scope and sequence. Teachers typically included some decoding, but placed more emphasis on spelling, vocabulary, and comprehension.</p> <p>The second group received explicit instruction on reading and spelling that was based on an adapted curriculum. The structured decoding curricula were designed for K-3 students, but were adapted for use with adults. Additional information about the curricula was not provided.</p>
Outcomes and measurement	<p>Study authors reported 11 outcome measures of academic skills that met standards:</p> <ul style="list-style-type: none"> • 8 in the alphabetics domain <ul style="list-style-type: none"> – Developmental Spelling Test – Test of Word Reading Efficiency: Phonemic Decoding Efficiency subtest – Test of Word Reading Efficiency: Sight Word Efficiency subtest – Wide Range Achievement Test Revision 3: Spelling subtest – Wide Range Achievement Test Revision 3: Reading subtest – Woodcock-Johnson Tests of Achievement Revised: Word Attack subtest – Woodcock-Johnson Tests of Achievement Revised: Letter-Word Identification subtest – Letter-Sound survey • 2 in the comprehension domain <ul style="list-style-type: none"> – Nelson Reading Comprehension Test – Nelson Word Meaning Test • 1 in the reading fluency domain <ul style="list-style-type: none"> – Passage Reading Test

Additional implementation details	The researchers measured attendance and hours of instruction for each of the study groups. The mean number of hours of instruction was approximately 65 among those using a K-3 curriculum adapted for adult learners, 60 among those using existing reading instruction, and 50 among those using the MSDS curriculum. Attendance rates were 57 percent, 51 percent, and 55 percent, respectively. The researchers also looked at whether MSDS was implemented as intended by calculating the percentage of lessons taught, the number of hours of study curriculum offered to learners, and the level of fidelity to the scripted lessons based on classroom observations. The median percentage of lessons taught was 92 percent; the mean total hours of study curriculum was 27; and the mean fidelity scores were 2.18 on a scale of 0 to 3 on the classroom observation form, where a score of 3 means all segments were taught as scripted.
-----------------------------------	---

Study Review URL in WWC Database <https://ies.ed.gov/ncee/wwc/Study/87298>

Study details for Alamprese et al. (2011): K-3 curriculum adapted for adult learners

Study overview	This study investigated the use of a K-3 curriculum that was adapted for adult learners and provided explicit instruction on reading and spelling. This evidence review considered Alamprese et al. (2011) as two separate studies that examined different approaches to teaching literacy. This profile describes the comparisons with learners who received a K-3 curriculum adapted for adult learners and learners who did not. The Alamprese et al. (2011) profile, Making Sense of Decoding and Spelling, describes the comparisons with learners who received the Making Sense of Decoding and Spelling (MSDS) curriculum with learners who did not.
Category(ies): Strategy(ies)	Literacy instruction: Explicit instruction on reading and spelling
WWC rating	Meets WWC standards with reservations. The study used a cluster quasi-experimental design, and the groups of learners were shown to be similar at the start of the study.
Setting	The study took place in 23 adult literacy programs located in 12 states. These programs included 71 reading classes and 34 instructors.
Methods	This study used a cluster quasi-experimental design. Learners in adult education programs who received a K-3 curriculum adapted for adult learners were compared with two other sets of learners. The first set of learners received their existing reading instruction, and the second set of learners received the MSDS curriculum.
Study sample	The initial sample consisted of 349 learners. These learners attended an adult literacy program that provided class-based instruction to English-speaking adults at the intermediate level. Sixty-six percent of learners were female. The race/ethnicity distribution of learners was 35 percent White, 24 percent Hispanic, 20 percent Black, 15 percent Asian, and 6 percent in an unspecified other category. Thirty-five percent were born and educated outside of the United States. Sixty-three percent had low incomes based on the poverty threshold of \$12,000 annual salary. Thirty-one percent were identified as having a learning disability.
Treatment group	The treatment curriculum provided explicit instruction on reading and spelling. The curriculum was adapted for adult learners from a structured curriculum, originally designed for K-3 students, that focused on decoding and spelling. Additional information about the curricula was not provided. Classes lasted approximately 30 weeks and met one to five days per week.

Comparison group	<p>There were two comparison conditions. In both groups, classes lasted approximately 30 weeks and met one to five days per week.</p> <p>The first group continued using the existing reading instruction. These classes did not use a published scope and sequence. Teachers typically included some decoding in their instruction, but placed more emphasis on spelling, vocabulary, and comprehension.</p> <p>The second comparison group used a curriculum called Making Sense of Decoding and Spelling, which was designed specifically for adult learners. Teachers in this condition used the study curriculum to teach decoding and spelling. The curriculum includes a review of alphabetic decoding skills and principles and teaches a strategy for decoding multisyllabic words to be used throughout the curriculum. Instruction was primarily delivered to the whole group in scripted lessons, but lessons include paired- and individual-learner reading practice designed to improve reading speed. Each lesson includes progress monitoring assessments. Instructors were given lesson plans with examples and presentation materials.</p>
Outcomes and measurement	<p>Study authors reported nine outcome measures of academic skills that met standards:</p> <ul style="list-style-type: none"> • Seven in the alphabetics domain <ul style="list-style-type: none"> – Developmental Spelling Test – Test of Word Reading Efficiency: Phonemic Decoding Efficiency subtest – Wide Range Achievement Test Revision 3: Spelling subtest – Wide Range Achievement Test Revision 3 Reading subtest – Woodcock-Johnson Tests of Achievement Revised: Word Attack subtest – Woodcock-Johnson Tests of Achievement Revised: Letter-Word Identification subtest – Letter-Sound survey • One in the comprehension domain <ul style="list-style-type: none"> – Nelson Reading Comprehension Test • One in the reading fluency domain <ul style="list-style-type: none"> – Passage Reading Test <p>Study authors examined other outcomes that did not meet standards.</p>
Additional implementation details	<p>The researchers measured attendance and hours of instruction for each of the study groups. The mean number of hours of instruction was approximately 65 among those using a K-3 curriculum adapted for adult learners, 60 among those using existing reading instruction, and 50 among those using the MSDS curriculum. Attendance rates were 57 percent, 51, and 55 percent, respectively. The researchers also looked at whether MSDS was implemented as intended by calculating the percentage of lessons taught, the number of hours of study curriculum offered to learners, and the level of fidelity to the scripted lessons based on classroom observations. The median percentage of lessons taught was 92 percent; the mean total hours of study curriculum was 27; and the mean fidelity scores were 2.18 on a scale of 0 to 3 on the classroom observation form, where a score of 3 means all segments were taught as scripted.</p>

Study Review URL in WWC Database <https://ies.ed.gov/ncee/wwc/Study/88727>

Study details for Anderson et al. (2017)

Study overview	This study investigated Accelerating Opportunity (AO), an integrated education and training (IET) co-teaching model that also provided career navigation supports and wraparound services to address basic needs and logistical barriers.
Category(ies): Strategy(ies)	Career development and transition instruction: Integrated education and training (IET) using co-teaching approaches Individualized and targeted supports for learners: Career navigation supports and wraparound services
WWC rating	Meets WWC standards with reservations. The study used a quasi-experimental design, and the groups of learners were shown to be similar at the start of the study.
Setting	The study took place in four states; however, the findings that meet WWC standards involved only two states. Within these two states, the study took place in 25 community colleges or technical schools.
Methods	The study used a propensity score matching analysis that matched learners in the AO program with non-AO learners drawn from the same programs where AO learners were recruited. The two groups of learners were matched so they were similar on observed characteristics.
Study sample	The initial sample from the analyses of the two states that met standards, which were Illinois and Louisiana, consisted of 8,451 learners. These learners either participated in the AO program or were enrolled in one of three recruitment sources in participating states: adult education, career and technical education, or developmental education. The weighted analytic sample is 59 percent female, 35 percent White, 45 percent Black, and 13 percent Hispanic. Twenty-one percent of the learners (weighted percentage) received a Pell grant.
Treatment group	Learners in the treatment group participated in an IET co-teaching model based on I-BEST called AO. AO provided funding to community and technical colleges to develop accessible career pathways in high-demand occupations. Career pathways are sequenced programs that allow learners to obtain one credential that can lead to others meaningful to the field. The AO pathway sequence typically includes 12 credits and is designed to be completed in one year or less. The model includes instruction that integrates basic skills with career and technical education, and it provides wraparound and career navigation services.
Comparison group	The learners in the comparison group continued their existing instructional practices, which could include being enrolled in developmental education or career and technical education programs. The study did not include additional details on the comparison condition.

Outcomes and measurement	<p>Study authors reported four outcome measures of employment that met standards:</p> <ul style="list-style-type: none"> • Two in the <i>employment short-run</i> domain: Whether the learner was employed: <ul style="list-style-type: none"> – In Quarter 1 (Illinois) – In Quarter 1 (Louisiana) • Two in the <i>employment long-run</i> domain: Whether the learner was employed: <ul style="list-style-type: none"> – In Quarter 3 (Louisiana) – In Quarter 4 (Illinois) <p>Study authors reported four outcome measures of earnings that met standards:</p> <ul style="list-style-type: none"> • Two in the <i>earnings short-run</i> domain: <ul style="list-style-type: none"> – Earnings in Quarter 1 (Illinois) – Earnings in Quarter 1 (Louisiana) • Two in the <i>earnings long-run</i> domain: <ul style="list-style-type: none"> – Earnings in Quarter 3 (Louisiana) – Earnings in Quarter 4 (Illinois) <p>Study authors examined other outcomes that either did not meet standards or that met standards but were considered supplemental findings according to the review protocol. Supplemental findings are not reported in the evidence review.</p>
Additional implementation details	The study does not provide specific information about support for implementation.
Study Review URL in WWC Database	https://ies.ed.gov/ncee/wwc/Study/88714

Study details for Batchelder & Rachal (2000)

Study overview	This study investigated the use of a computer-assisted instruction program designed to help learners prepare for the high school equivalency test by providing instruction in math and English.
Category(ies): Strategy(ies)	Literacy instruction: Literacy curricular materials Numeracy instruction: Numeracy curricular materials Adult secondary education: Preparation for the high school equivalency test Tools to improve access to instruction: Technology learning tools
WWC rating	Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.
Setting	The study took place in an adult education program in a prison.
Methods	The study is a randomized controlled trial. Researchers used a lottery to assign learners either to receive the supplemental instruction or to a comparison condition.
Study sample	The initial sample consisted of 71 learners. These learners lacked a high school credential and volunteered for the adult education program at the prison. Learners were male, and their average age was 30.5. Seventy-nine percent were African American, and 21 percent were Caucasian. Thirty-five percent scored below an eighth-grade level on the Test of Adult Basic Education.
Treatment group	The computer-assisted instruction (CAI) program was a supplement to the traditional high school equivalency instruction provided to inmates. During one of the instructional hours each day, learners were pulled out of the classroom to use a "tutorial/drill and practice" software, which included math and English instruction. Learners used the program independently in the computer lab with no additional instruction from a teacher, although they could ask technical questions about using the computers.
Comparison group	Members of the comparison group received the existing instructional practices offered by the prison to help prepare learners for high school equivalency exams. Eighty hours of instruction were offered over a four-week period, with four hours of instruction per day. Each day, learners received one hour each of math, English, history, and science instruction. Instructors taught 10 to 15 learners in each class.
Outcomes and measurement	Study authors reported two outcome measures of academic skills that met standards: <ul style="list-style-type: none">• One in the <i>general mathematics achievement</i> domain: Comprehensive Adult Student Assessment System Math subtest• One in the <i>literacy achievement</i> domain: Comprehensive Adult Student Assessment System Reading subtest
Additional implementation details	Support staff provided technical assistance to learners using CAI in the computer lab. The study did not discuss any other support for implementation.
Study Review URL in WWC Database	https://ies.ed.gov/ncee/wwc/Study/88717

Study details for Condelli et al. (2010)

Study overview	This study investigated the Sam and Pat Volume 1 textbook and curriculum, which gave English learners instruction in reading, writing, listening, and speaking.
Category(ies): Strategy(ies)	English language acquisition instruction: English language acquisition approaches to reading, writing, listening, and speaking, and curricular materials
WWC rating	Meets WWC group design standards without reservations. The study is a cluster randomized controlled trial with low attrition at the cluster and individual levels.
Setting	The study took place in 10 adult education program sites offering classes for English language learners in four states. These programs included 66 adult English as a Second Language (ESL) classrooms.
Methods	The study is a cluster randomized controlled trial. The authors used a lottery to assign pairs of classrooms within sites to either receive the Sam and Pat Volume 1 reading textbook or to be in the comparison condition. Another lottery assigned learners to classrooms.
Study sample	The initial sample consisted of 1,344 learners. These learners were eligible for low-literacy-level adult education English as a second language classes and enrolled in one of the 10 participating adult education programs. Fifty-nine percent of learners were female, and the average age was 40. About 14 percent were Asian, Pacific Islander, or Native Hawaiian, or identified as another unspecified race; 12 percent were African American; and 25 percent were White. Race was not reported for 49 percent of learners. The authors reported on outcome measures for the full sample as well as for Spanish-speaking learners, which met standards.
Treatment group	The Sam and Pat Volume I reading textbook was used in instruction. The textbook, which is described by the authors as targeted to the needs of English learners with low levels of literacy, is a modification of a traditional reading curriculum that was developed for native English speakers (the Wilson and Orton-Gillingham reading systems). The textbook and curriculum give explicit instruction on reading, writing, pronunciation, vocabulary, and grammar, designed for English learners. The curriculum is designed to give multiple opportunities for repetition, guided practice, and review. The vocabulary and reading passages focus words and themes relevant to the learners' lived experience. Each lesson is designed to include at least one two-and-a-half-hour session per week of pre-reading instruction, and one two-and-a-half hour session per week of decoding and reading comprehension instruction. The textbook includes 22 lessons, which developers expect would take two terms to cover. In this study, an average of 13 in-class lessons were covered, ranging from 3 to 22 lessons. Learners in the treatment group attended, on average, 79 hours of instruction.

Comparison group	The comparison group received standard preexisting ESL instruction, which focused primarily on learning English. The learners in the comparison condition spent more time on English language acquisition and functional reading, writing, and math instruction, and less time on reading development instruction than the treatment classrooms did. On average, learners in the comparison condition attended the ESL class for approximately 72 hours.
Outcomes and measurement	<p>Study authors reported seven outcome measures of academic skills that met standards:</p> <ul style="list-style-type: none"> • Three in the <i>alphabetics</i> domain <ul style="list-style-type: none"> – ETS SARA - Decoding subtest – Woodcock Johnson III Letter-Word Identification – Woodcock Johnson III Word Attack subtests • One in the <i>comprehension</i> domain: Woodcock Johnson III Passage Comprehension subtest • Three in the <i>English Language Proficiency</i> domain <ul style="list-style-type: none"> – Oral and Written Language Scales – Receptive One-Word Picture Vocabulary Test – Woodcock Johnson III Picture Vocabulary subtest). <p>The outcomes for Spanish-speaking students were considered supplemental findings per the review protocol and are not reported in the evidence review. The authors also examined other outcomes that did not meet standards.</p>
Additional implementation details	Treatment teachers received three days of training, which included an overview of the approach, specific guidance on lesson planning, and opportunities for reflection. The treatment developers provided a refresher webinar just before the start of the second term. The trainers also conducted a site visit to each treatment classroom about six weeks into the beginning of each term and called the teachers biweekly during the first two months. They also provided one-day individualized training to teachers who were having the most difficulty implementing the curriculum as determined by the site visits and phone calls.

Study Review URL in WWC Database <https://ies.ed.gov/ncee/wwc/Study/87305>

Study details for Cook et al. (2018)

Study overview	This study investigated the Patient Care Pathway (PCP) program, which provided contextualized basic instruction, bridge classes, and wraparound services to address basic needs and logistical barriers.
Category(ies): Strategy(ies)	Career development and transition instruction: Contextualized basic skills instruction and bridge classes Individualized and targeted supports for learners: Wraparound services
WWC rating	Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.
Setting	The study took place in a two-year college in the Midwest.
Methods	The study is a randomized controlled trial. The authors used a lottery to assign learners to have access to the PCP program or to a comparison condition.
Study sample	The initial sample consisted of 500 learners. These learners had scores on the Comprehensive Adult Student Assessment System test that fell within a range consistent with low skills, but not very poor skills. The eligible range of scores varied by program and college. Eighty-four percent of learners were female. Sixty-seven percent were White, non-Hispanic; 21 percent were Black, non-Hispanic; and 9 percent were Hispanic. Twenty-three percent of learners were age 20 or younger, 21 percent were ages 21 to 24, 30 percent were ages 25 to 34, and 25 percent were age 35 or older. Forty-seven percent had a high school diploma, a diploma equivalent, or less. Learners reported an average income at baseline of \$33,165. On measures of socioeconomic status, 36 percent reported receiving benefits from the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) or the Supplemental Nutrition Assistance Program (SNAP); 4 percent reported receiving public assistance or welfare, and 34 percent reported experiencing financial hardship.
Treatment group	The PCP program is a course of study designed to accelerate entry into a degree-granting program in a health field. The content of the courses is contextualized to health careers, and the program also includes wraparound supports, including advising services to help learners enroll in courses.
Comparison group	The comparison group continued to receive existing courses and supports at the college. This included non-contextualized remediation courses and access to advisors who were unaffiliated with the PCP academies.
Outcomes and measurement	Study authors reported two outcomes of educational progress that met standards: <ul style="list-style-type: none"> • One in the <i>progressing in college</i> domain: Hours of occupational training at a college • One in the <i>industry-recognized credential, certificate, or license (short-run)</i> domain: Whether the learner received an occupational or educational credential from any source Study authors examined other outcomes that either did not meet standards or that met standards but were considered supplemental findings per the review protocol. Supplemental findings are not reported in the evidence review.

Additional implementation details	The study does not provide specific information about support for implementation.
Study Review URL in WWC Database	https://ies.ed.gov/ncee/wwc/Study/87236

Study details for Glosser et al. (2018)

Study overview	This study investigated the Integrated Basic Education and Skills Training (I-BEST) program, which provides integrated education and training (IET) through co-teaching approaches, co-enrollment with credit courses at colleges, career navigation services, and wraparound services to address basic needs and logistical barriers.
Category(ies): Strategy(ies)	Career development and transition instruction: IET using co-teaching approaches and co-enrollment with credit courses at colleges Individualized and targeted supports for learners: Career navigation supports and wraparound services
WWC rating	Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.
Setting	The study took place in three two-year colleges in the Northwest.
Methods	The study is a randomized controlled trial. The authors assigned learners through a lottery to receive the I-BEST program or to a comparison condition.
Study sample	The initial sample consisted of 632 learners. These learners had scores on the Comprehensive Adult Student Assessment System test that fell within a range consistent with low skills, but not very poor skills. The range of scores that determined eligibility varied by program and college. Fifty-eight percent of learners were female. Fifty-five percent of learners were White, non-Hispanic; 8 percent were Black, non-Hispanic; and 26 percent were Hispanic. Twenty-two percent of learners were age 20 or younger, 15 percent were ages 21 to 24, 30 percent were ages 25 to 34, and 33 percent were age 35 or older. Thirty-one percent had less than a high school degree, and 40 percent had a high school diploma or the equivalent. Learners reported an average income at baseline of \$22,110. On measures of socioeconomic status, 59 percent reported receiving benefits from the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) or the Supplemental Nutrition Assistance Program (SNAP); 21 percent reported receiving public assistance or welfare, and 49 percent reported experiencing financial hardship.
Treatment group	The I-BEST program is intended to provide low-skill learners with a career pathway through a community or technical college to obtain a credential or degree that is valued in a particular occupation (such as automotive, electrical, nursing assistant, or welding positions). The programs offered courses that provided learners with occupational credit that could lead to workforce credentials within one or two quarters. The courses offered integrated occupational training and basic skills instruction. Learners could also take additional basic skills classes designed to support the integrated courses. The program also gave learners financial assistance to completely cover tuition, and advisors to support them during enrollment, while they were taking courses, and to plan for their career.
Comparison group	The comparison group continued to enroll in existing courses and receiving typical supports at the colleges. This included non-contextualized remediation courses and access to advising services that were unaffiliated with the I-BEST program.

Outcomes and measurement	<p>Study authors reported one outcome measure of educational progress that met standards:</p> <ul style="list-style-type: none"> • <i>Industry-recognized credential, certificate, or license (short-run)</i> domain: Whether the learner received an occupational or educational credential from any source
	<p>Study authors reported one outcome measure of employment that met standards:</p> <ul style="list-style-type: none"> • <i>Employment (short-run)</i> domain: Whether the learner worked in a job requiring at least mid-level skills
	<p>Study authors reported one outcome measure of earnings that met standards:</p> <ul style="list-style-type: none"> • <i>Earnings (short-run)</i> domain: Whether the learner worked in a job paying \$12 per hour or more
	<p>Study authors examined other outcomes that either did not meet standards or that met standards but were considered supplemental findings per the review protocol. Supplemental findings are not reported in the evidence review.</p>
Additional implementation details	<p>The study does not provide specific information about support for implementation.</p>
Study Review URL in WWC Database	https://ies.ed.gov/ncee/wwc/Study/87238

Study details for Gray et al. (2018)

Study overview	The study investigated the semantic mapping with morpho-phonemic analysis (SM-MPA) tutoring program, which provided explicit instruction on reading.
Category(ies): Strategy(ies)	Literacy instruction: Explicit instruction on reading
WWC rating	Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.
Setting	The study took place in an adult learning center in the Mid-Atlantic.
Methods	The study is a randomized controlled trial. The authors matched learners on language learning background and baseline reading assessments, and then assigned each learner within the matched pairs, through a lottery, to receive semantic mapping with morpho-analysis tutoring, or to a comparison condition.
Study sample	The initial sample consisted of 46 learners. These learners were enrolled in or had recently completed a high school equivalency exam program, had basic English proficiency, and were between the ages of 18 and 31, among other criteria. The study included adult learners whose average age was 24, and who had not received a high school equivalency credential. On average, learners had completed schooling through grade 10. Fifty-six percent were bilingual, 56 percent were female, and 56 percent were Latino.
Treatment group	The SM-MPA tutoring program implemented five elements of evidence-based practice: using principles of effective morphological teaching, creating word sums, studying morphological relatives, teaching flexible syllable segmentation, and assigning primary syllable stress. The SM-MPA program focused on teaching 40 academic vocabulary words (derived from Latin and Greek word origins and included in a high school civics textbook) using a semantic graphic organizer to examine the meaning and sounds of the roots and components of each word. Each tutoring session took place over a two-hour period each week. The treatment group attended programming over a six-week period, with instruction taking place in Weeks 2 through 5 (eight hours of individual tutoring). Weeks 1 and 6 were dedicated to pre- and post-testing.
Comparison group	The semantic mapping with whole word study (SM-WWS) tutoring program used traditional vocabulary instruction methods to teach the same 40 words that were being taught to the treatment group. SM-WWS implemented three elements of evidence-based vocabulary instruction: information about definitions and sentence contexts, multiple exposure, and student engagement. The instruction focused on teaching whole words without analyzing words' internal meaning or sound structures. The sessions also took place over a six-week period, with eight hours of individual tutoring.

Outcomes and measurement	<p>Study authors reported eleven outcome measures of academic skills that met standards:</p> <ul style="list-style-type: none"> • Six in the <i>alphabetics</i> domain <ul style="list-style-type: none"> – Woodcock Johnson Tests of Achievement III: Letter-Word Identification subtest – Woodcock Johnson Tests of Achievement III: Word Attack subtest – Woodcock Johnson Tests of Achievement III: Spelling subtest – Woodcock Johnson Tests of Achievement III: Spelling of Sounds subtest – Read Words – Spell Words • Five in the <i>comprehension</i> domain <ul style="list-style-type: none"> – Woodcock Johnson Tests of Achievement III: Passage Comprehension subtest – Woodcock Johnson Tests of Achievement III: Reading Vocabulary subtest – Woodcock Johnson Tests of Achievement III: Picture Vocabulary subtest – Match Definitions – Complete Sentences <p>Study authors examined another outcome that did not meet standards.</p>
Additional implementation details	The study does not provide specific information about support for implementation.
Study Review URL in WWC Database	https://ies.ed.gov/ncee/wwc/Study/87308

Study details for Greenberg et al. (2011): Decoding and Fluency

Study overview	This study investigated an oral reading approach and the SRA/McGraw Hill Direct Instruction Corrective Reading program, which provided explicit instruction on reading. This evidence review considered Greenberg et al. (2011) as four separate studies that examined different approaches to teaching literacy. This profile describes the comparison of learners who received the Decoding and Fluency approach with learners who did not. Three other profiles examine the Decoding, Comprehension, and Fluency; Decoding, Comprehension, Fluency, and Extensive Reading; and the Extensive Reading approaches.
Category(ies): Strategy(ies)	Literacy instruction: Explicit instruction on reading and curricular materials
WWC rating	Meets WWC standards with reservations. The study is a compromised randomized controlled trial, and the groups of learners were shown to be similar at the start of the study.
Setting	The study took place in 23 adult literacy programs.
Methods	This is a randomized controlled trial. Authors used a lottery to assign learners to either receive one of the approaches to teaching literacy or be in a comparison group. However, the assignment was compromised because the analysis was restricted to learners who were exposed to a set number of hours of instruction after random assignment. The authors demonstrated that the groups of learners in this restricted sample were similar at the beginning of the study.
Study sample	The initial study sample consisted of 86 learners. There were 198 learners across all four studies. These learners could read at levels that fell between the 2nd and 6th grade levels. About 55 percent of learners were African American, 28 percent were Hispanic, 12 percent were Asian, and 6 percent were White. Sixty-seven percent were female. Fifty-six percent were English language learners, and the rest were native English speakers. Twenty-nine percent of learners repeated at least one grade of school, 15 percent attended special education classes while in school, and 49 percent reported graduating from high school.
Treatment group	The treatment included explicit instruction on reading and curriculum using two parts of the SRA/McGraw Hill Direct Instruction Corrective Reading program: decoding and fluency. In the Decoding component (D), learners learned skills such as phonemic relationships, new sound combinations, word endings, and letter and sound combinations. In the Fluency component (F), learners independently practiced a passage until they improved their number of correct words read per minute by 40 percent over their initial level. Teachers gave each learner a passage at his or her reading level and used a guided repeated oral reading approach. Learners practiced for 15 minutes. If they met or exceeded their target, they moved on to a new passage. During each two-hour class, time was allocated as follows: 100 minutes of decoding, 15 minutes of fluency, and 5 minutes for a break. The average number of decoding lessons was 75. Instruction was provided for two hours per class, four times a week, for 12 and a half weeks. Learners attending all classes received 100 hours of instruction.

Comparison group	The comparison group used a popular existing adult literacy curriculum. Teachers were advised to focus on teaching prime frequency words, W-H questions (who, what, when, where, why how), spelling, oral reading, journal writing, categorization of words, sentence structure, and mechanics of punctuation. Books were not used, but teachers could use excerpts based on learners' interest. Instruction was provided for two hours per class, four times a week, for 12 and a half weeks. The curriculum did not allocate specific amounts of time for each topic. Learners attending all classes received 100 hours of instruction.
Outcomes and measurement	Study authors reported three outcome measures of academic skills that met standards: <ul style="list-style-type: none"> • Two in the <i>reading fluency</i> domain <ul style="list-style-type: none"> – Woodcock Johnson III Reading Fluency subtest – Gray Oral Reading Test IV Fluency subtest) • One in the <i>comprehension</i> domain: Woodcock Johnson Passage Comprehension subtest <p>Study authors examined <u>other outcomes that did not meet standards</u>.</p>
Additional implementation details	The teachers were hired specifically for the study. They had teaching backgrounds, but none had experience with the approaches in the SRA/McGraw Hill Direct Instruction Corrective Reading program. Each teacher received one week of training in adult literacy awareness and sensitivity, along with training on each approach. Once classes were in session, coaches observed each teacher five times during the year. Teachers received additional training if necessary.
Study Review URL in WWC Database	https://ies.ed.gov/ncee/wwc/Study/87625

Study details for Greenberg et al. (2011): Decoding, Comprehension, and Fluency

Study overview	This study investigated an oral reading approach and the SRA/McGraw Hill Direct Instruction Corrective Reading program, which provided explicit instruction on reading. This evidence review considered Greenberg et al. (2011) as four separate studies that examined different approaches to teaching literacy. This profile describes the comparison of learners who received the Decoding, Comprehension, and Fluency approach with learners who did not. Three other profiles examine the Decoding and Fluency; Decoding, Comprehension, Fluency, and Extensive Reading; and Extensive Reading approaches.
Category(ies): Strategy(ies)	Literacy instruction: Explicit instruction on reading and curricular materials
WWC rating	Meets WWC standards with reservations. The study is a compromised randomized controlled trial, and the groups of learners were shown to be similar at the start of the study.
Setting	The study took place in 23 adult literacy programs.
Methods	This is a randomized controlled trial. Authors used a lottery to assign learners to receive one of the approaches to teaching literacy, or to a comparison group. However, the assignment was compromised because the analysis was restricted to learners who were exposed to a set number of hours of instruction after random assignment. The authors demonstrated that the groups of learners in this restricted sample were similar at the beginning of the study.
Study sample	The initial sample consisted of 81 learners. There were 198 learners across all four studies. These learners could read at levels between 2nd and 6th grade. About 55 percent of learners were African American, 28 percent were Hispanic, 12 percent were Asian, and 6 percent were White. Sixty-seven percent were female. Fifty-six percent were English language learners, and the rest were native English speakers. Twenty-nine percent of learners repeated at least one grade of school; 15 percent attended special education classes while in school; and 49 percent reported graduating from high school.

Treatment group	<p>The treatment included explicit instruction on reading and curriculum using three parts of the SRA/McGraw Hill Direct Instruction Corrective Reading program: decoding, comprehension, and fluency. In the Decoding component (D), learners learned skills such as phonemic relationships, new sound combinations, word endings, and letter and sound combinations. In the Comprehension component (C), learners learned how to organize groups of facts and use analogies, classifications, deductions, inductions, descriptions, conclusions, contradictions, and written directions. In the Fluency component (F), learners independently practiced a passage until they improved their number of correct words read per minute by 40 percent over their initial level. Teachers gave each learner a passage at his or her reading level and used a guided repeated oral reading approach. Learners practiced for 15 minutes. If they met or exceeded their target, they moved on to a new passage. During each two-hour class, time was allocated as follows: 50 minutes of decoding, 50 minutes of comprehension, 15 minutes of fluency, and 5 minutes for a break. The average number of decoding lessons was 48, and the average number of comprehension lessons was 34. Instruction was provided for two hours per class, four times a week, for 12 and a half weeks. Learners attending all classes received 100 hours of instruction.</p>
Comparison group	<p>The comparison group used a popular existing adult literacy curriculum. Teachers were advised to focus on teaching prime frequency words, W-H questions (who, what, when, where, why how), spelling, oral reading, journal writing, categorization of words, sentence structure, and mechanics of punctuation. Books were not used, but teachers could use excerpts based on learners' interest. Instruction was provided for two hours per class, four times a week, for 12 and a half weeks. The curriculum did not allocate specific amounts of time for each topic. Learners attending all classes received 100 hours of instruction.</p>
Outcomes and measurement	<p>Study authors reported four outcome measures of academic skills that met standards:</p> <ul style="list-style-type: none"> • Two in the <i>comprehension</i> domain <ul style="list-style-type: none"> – Woodcock Johnson Passage Comprehension subtest – Gray Oral Reading Test IV Comprehension subtest • Two in the <i>reading fluency</i> domain <ul style="list-style-type: none"> – Woodcock Johnson III Reading Fluency subtest – Gray Oral Reading Test IV Fluency subtest <p>Study authors examined other outcomes that did not meet standards.</p>
Additional implementation details	<p>The teachers were hired specifically for the study. They had teaching backgrounds, but none had experience with the approaches in the SRA/McGraw Hill Direct Instruction Corrective Reading program. Each teacher received one week of training in adult literacy awareness and sensitivity, along with training on each approach. Once classes were in session, coaches observed each teacher five times during the year. Teachers received additional training if necessary.</p>
Study Review URL in WWC Database	https://ies.ed.gov/ncee/wwc/Study/88771

Study details for Greenberg et al. (2011): Decoding, Comprehension, Fluency, and Extensive Reading

Study overview	This study investigated extended reading practice and an oral reading approach, as well as the use of the SRA/McGraw Hill Direct Instruction Corrective Reading program, which provided explicit instruction on reading.
	This evidence review considered Greenberg et al. (2011) as four separate studies that examined different approaches to teaching literacy. This profile describes the comparison of learners who received the Decoding, Comprehension, Fluency, and Extensive Reading approach with learners who did not. Three other profiles examine the Decoding and Fluency; Decoding, Comprehension, and Fluency; and the Extensive Reading approaches.
Category(ies): Strategy(ies)	Literacy instruction: Explicit instruction on reading, extended reading practice, and curricular materials
WWC rating	Meets WWC standards with reservations. The study is a compromised randomized controlled trial, and the groups of learners were shown to be similar at the start of the study.
Setting	The study took place in 23 adult literacy programs.
Methods	This is a randomized controlled trial. Authors assigned learners through a lottery to receive one of the approaches to teaching literacy, or to a comparison group. However, the assignment was compromised because the analysis was restricted to learners who were exposed to a set number of hours of instruction after random assignment. The authors demonstrated that the groups of learners in this restricted sample were similar at the beginning of the study.
Study sample	The initial sample consisted of 89 learners. There were 198 learners across all four studies. These learners could read between the 2nd and 6th grade levels. About 55 percent of learners were African American, 28 percent were Hispanic, 12 percent were Asian, and 6 percent were White. Sixty-seven percent were female. Fifty-six percent were English language learners, and the rest of were native English speakers. Twenty-nine percent of learners repeated at least one grade of school, 15 percent attended special education classes while in school, and 49 percent reported graduating from high school.

Treatment group	<p>The treatment included explicit instruction on reading, extended practice, and curriculum using four parts of the SRA/McGraw Hill Direct Instruction Corrective Reading program: decoding, comprehension, extensive reading, and fluency. In the Decoding component (D), learners learned skills such as phonemic relationships, new sound combinations, word endings, and letter and sound combinations. In the Comprehension component (C), learners learned how to organize groups of facts and use analogies, classifications, deductions, inductions, descriptions, conclusions, contradictions, and written directions. Extensive Reading (E) is extended reading practice using an extensive library of high interest/low vocabulary books. Learners engaged in sustained silent reading, an activity where the teacher read aloud and the learner followed along, followed by discussion about the books everyone was reading. In the Fluency component (F), learners independently practiced a passage until they improved their number of correct words read per minute by 40 percent over their initial level. Teachers gave each learner a passage at his or her reading level and used a guided repeated oral reading approach. Learners practiced for 15 minutes. If they met or exceeded their target, they moved on to a new passage. During each two-hour class, time was allocated as follows: 33 minutes of decoding; 33 minutes of comprehension; 33 minutes of extensive reading (18 minutes of sustained silent reading, 10 minutes of teacher read-aloud, and 5 minutes of book discussion); 15 minutes of fluency; and 5 minutes for a break. The average number of decoding lessons was 36, and the average number of comprehension lessons was 31. Instruction was provided for two hours per class, four times a week, for 12 and a half weeks. Learners attending all classes received 100 hours of instruction.</p>
Comparison group	<p>The comparison group used a popular existing adult literacy curriculum. Teachers were advised to focus on teaching prime frequency words, W-H questions (who, what, when, where, why how), spelling, oral reading, journal writing, categorization of words, sentence structure, and mechanics of punctuation. Books were not used, but teachers could use excerpts based on learners' interest. Instruction was provided for two hours per class, four times a week, for 12 and a half weeks. The curriculum did not allocate specific amounts of time for each topic. Learners attending all classes received 100 hours of instruction.</p>
Outcomes and measurement	<p>Study authors reported three outcome measures of academic skills that met standards:</p> <ul style="list-style-type: none"> • One in the <i>comprehension</i> domain: Woodcock Johnson Passage Comprehension subtest • Two in the <i>reading fluency</i> domain <ul style="list-style-type: none"> – Woodcock Johnson III Reading Fluency subtest – Gray Oral Reading Test IV Fluency subtest <p>Study authors examined other outcomes that did not meet standards.</p>

Additional implementation details The teachers were hired specifically for the study. They had teaching backgrounds, but none had experience with the approaches in the SRA/McGraw Hill Direct Instruction Corrective Reading program. Each teacher received one week of training in adult literacy awareness and sensitivity, along with training on each approach. Once classes were in session, coaches observed each teacher five times during the year. Teachers received additional training if necessary.

Study Review URL in WWC Database <https://ies.ed.gov/ncee/wwc/Study/88772>

Study details for Greenberg et al. (2011): Extensive Reading

Study overview	This study investigated the use of extended reading practice. This evidence review considered Greenberg et al. (2011) as four separate studies that examined four different approaches to teaching literacy. This profile describes the comparison of learners who received the Extensive Reading approach with learners who did not. Three other profiles examine the Decoding and Fluency; Decoding, Comprehension, and Fluency; and Decoding, Comprehension, Fluency, and Extensive Reading approaches.
Category(ies): Strategy(ies)	Literacy instruction: Extended reading practice
WWC rating	Meets WWC standards with reservations. The study is a compromised randomized controlled trial, and the groups of learners were shown to be similar at the start of the study.
Setting	The study took place in 23 adult literacy programs.
Methods	This is a randomized controlled trial. Authors used a lottery to assign learners to either receive one of the approaches to teaching literacy or be in a comparison group. However, the assignment was compromised because the analysis was restricted to learners who were exposed to a set number of hours of instruction after random assignment. The authors demonstrated that the groups of learners in this restricted sample were similar at the beginning of the study.
Study sample	The initial sample consisted of 62 learners. There were 198 learners across all four studies. These learners could read between the 2nd and 6th grade levels. About 55 percent of learners were African American, 28 percent were Hispanic, 12 percent were Asian, and 6 percent were White. Sixty-seven percent were female. Fifty-six percent were English language learners, and the rest were native English speakers. Twenty-nine percent of learners repeated at least one grade of school; 15 percent attended special education classes while in school; and 49 percent reported graduating from high school.
Treatment group	Extensive Reading (ER) is extended reading practice using an extensive library of high interest/low vocabulary books. Learners engaged in sustained silent reading—an activity in which the teacher read aloud, and the learner followed along, with a discussion afterward about the books everyone was reading. During each class, time was allocated as follows: two blocks of silent sustained reading of 40 minutes each, 15 minutes of teacher read-aloud activities, 10 minutes of book discussion, and a 5-minute break.
Comparison group	The comparison group used a popular existing adult literacy curriculum. Teachers were advised to focus on teaching prime frequency words, W-H questions (who, what, when, where, why how), spelling, oral reading, journal writing, categorization of words, sentence structure, and mechanics of punctuation. Books were not used, but teachers could use excerpts based on learners' interest. Instruction was provided for two hours per class, four times a week, for 12 and a half weeks. The curriculum did not allocate specific amounts of time for each topic. Learners attending all classes received 100 hours of instruction.

Outcomes and measurement	<p>Study authors reported three outcome measures of academic skills that met standards:</p> <ul style="list-style-type: none">• One in the <i>alphabetics</i> domain: Woodcock Johnson Work Attack subtest• One in the <i>comprehension</i> domain: Woodcock Johnson Passage Comprehension subtest• One in the <i>reading fluency</i> domain: Gray Oral Reading Test IV Fluency subtest <p>Study authors examined other outcomes that did not meet standards.</p>
Additional implementation details	<p>The teachers were hired specifically for the study. They had teaching backgrounds, but none had experience with the approaches in the SRA/McGraw Hill Direct Instruction Corrective Reading program. Each teacher received one week of training in adult literacy awareness and sensitivity, along with training on each approach. Once classes were in session, coaches observed each teacher five times during the year. Teachers received additional training if necessary.</p>

Study Review URL in WWC Database <https://ies.ed.gov/ncee/wwc/Study/88773>

Study details for Hamadyk & Zeidenberg (2018)

Study overview	This study investigated the Workforce Training Academy Connect (WTA Connect) program, which provided technology learning tools, coordinated enrollment in adult education and occupational skills training, workforce preparation, career navigation supports, and wraparound services to address basic needs and logistical barriers.
Category(ies): Strategy(ies)	Tools to improve access to instruction: Technology learning tools Career development and transition instruction: Coordinated enrollment in adult education and occupational skills training, and workforce preparation Individualized and targeted supports for learners: Career navigation supports and wraparound services
WWC rating	Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.
Setting	The study took place in a community college in the Midwest.
Methods	The study is a randomized controlled trial. The authors used a lottery to assign learners to either the WTA Connect program or to a comparison condition.
Study sample	The initial sample consisted of 943 learners. These learners had math and reading skills between the 6th and 8th grade level. Sixty-three percent of learners were female. Thirty-four percent were White non-Hispanic, 47 percent were Black non-Hispanic, and 15 percent were Hispanic. Fourteen percent of learners were age 20 or younger, 16 percent were ages 21 to 24, 28 percent were ages 25 to 34, and 42 percent were age 35 or older. Forty percent had less than a high school degree, and 37 percent had a high school diploma or the equivalent. Learners reported an average income at the start of the study of \$16,364. On measures of socioeconomic status, 66 percent reported receiving benefits from the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) or the Supplemental Nutrition Assistance Program (SNAP); 14 percent reported receiving public assistance or welfare; and 63 percent reported experiencing financial hardship.
Treatment group	WTA Connect gives low-skill learners an opportunity to enroll in occupational certificate courses that they would otherwise be ineligible to take. Learners had access to basic skills remediation through online courses, advisors who provided support during enrollment and monitored academic progress, and employment assistance resources upon completion of an occupational certificate course. Learners took the remediation and occupational training courses tuition-free and could receive transportation assistance and screening for public benefit eligibility.
Comparison group	The comparison group continued to use existing education, training, and support services available in the community outside of the WTA Connect program. Additionally, learners could access training and services at the college or from other sources in the community. Some of these services, such as screening for benefits eligibility, were like services offered by WTA Connect.

Outcomes and measurement	<p>Study authors reported two outcome measures of educational progress that met standards:</p> <ul style="list-style-type: none"> • One in the <i>progressing in college</i> domain: Hours of college occupational training • One in the <i>industry-recognized credential, certificate, or license (short-run)</i> domain: Whether the learner received an occupational or educational credential from any source <p>Study authors reported one outcome measure of employment that met standards:</p> <ul style="list-style-type: none"> • <i>Employment (short-run)</i>: Whether the learner was working in a job requiring at least mid-level skills <p>Study authors reported one outcome measure of earnings that met standards:</p> <ul style="list-style-type: none"> • <i>Earnings (short-run)</i>: Whether the learner was working in a job paying \$12 per hour or more <p>Study authors examined other outcomes that either did not meet standards or that met standards but were considered supplemental findings per the review protocol. Supplemental findings are not reported in the evidence review.</p>
Additional implementation details	The study does not provide specific information about support for implementation.
Study Review URL in WWC Database	https://ies.ed.gov/ncee/wwc/Study/87237

Study details for Hock & Mellard (2011): Prediction Strategy

Study overview	This study investigated the Prediction Strategy, which provided explicit instruction on reading. This evidence review considered Hock & Mellard (2011) as four separate studies that examined different approaches to teaching literacy. This profile describes the comparison of learners who received the Prediction Strategy with learners who did not. The Hock & Mellard (2011) [Summarization Strategy] profile describes the comparison of learners who received the Summarization Strategy with learners who did not. There are no profiles for the two other instructional models (Bridging Strategy and Building Fluency Strategy) because these studies did not meet standards.
Category(ies): Strategy(ies)	Literacy instruction: Explicit instruction on reading
WWC rating	Meets WWC standards with reservations. The study is a randomized controlled trial with high attrition, and the groups of learners were shown to be similar at the start of the study.
Setting	The study took place in three adult education programs operated by community colleges in the Midwest. These programs included 29 reading classes.
Methods	The study is a randomized controlled trial. The authors used a lottery to assign learners to receive the Prediction Strategy instructional model or to comparison classes within adult education programs.
Study sample	The initial sample consisted of 143 learners. There were 375 learners across all four studies. These learners were at least 16 years old, had withdrawn from secondary education without earning a credential or without attaining 8th grade equivalency in reading, writing, or math skills; and were U.S. citizens or authorized to work in the United States. Across the four studies, 63 percent of learners were female, and 33 percent were White. On average, learners had completed a level of education between 9th and 10th grade.
Treatment group	The program taught learners to use the “CLUE” mnemonic: C - check for clues; L - link to prior knowledge; U - unveil predictions, and E - examine the reading. Before reading a passage, a learner “checks for clues” by visually scanning the reading materials. The next step involves the learners thinking about what the clues tell them and linking them to what they already know. In the third step, the learner makes and unveils a prediction about the passage’s main topic. In general, classes were planned for eight weeks, four days per week, and 50–60 minutes per day.
Comparison group	Comparison group instructors continued using their existing teaching practices. They delivered materials to prepare learners for the high school equivalency exam using whole group instruction, small groups, and individual tutoring. Comparison classes were also planned for eight weeks, four days per week, and 50–60 minutes per day.

Outcomes and measurement	Study authors reported two outcome measures of academic skills that met standards: <ul style="list-style-type: none">• <i>Comprehension domain</i><ul style="list-style-type: none">– Woodcock Reading Mastery Test-Revised Passage Comprehension subtest– Gray Oral Reading Tests Fourth Edition Comprehension subtest
Additional implementation details	Research staff trained instructors in the treatment condition before the study began and gave them reading materials for adult learners. To monitor implementation, researchers collected instructors' records of attendance and minutes of instruction and made audio- and video-recordings of all class. The authors indicated that the differences between treatment and comparison groups in the number of minutes of instruction or learner attendance rates were not large enough to be distinguished from statistical noise. They also indicated that the treatment instructors taught the “CLUE” mnemonic strategy and that the comparison instructors did not.
Study Review URL in WWC Database	https://ies.ed.gov/ncee/wwc/Study/88733

Study details for Hock & Mellard: 2011: Summarization

Study overview	This study investigated the Summarization Strategy, which provided explicit instruction on reading. This evidence review considered Hock & Mellard (2011) as four separate studies that examined different approaches to teaching literacy. This profile describes the comparison of learners who received the Summarization Strategy with learners who did not. The Hock & Mellard, 2011 [Prediction Strategy] profile describes the comparison of learners who received the Prediction Strategy with learners who did not. There are no profiles for the two other instructional models (Bridging Strategy and Building Fluency Strategy) because these studies did not meet standards.
Category(ies): Strategy(ies)	Literacy instruction: Explicit instruction on reading
WWC rating	Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.
Setting	The study took place in four adult education programs operated by a community-based organization in the Midwest. These programs included 28 reading classes.
Methods	The study is a randomized controlled trial. The authors assigned learners through a lottery to receive the Summarization Strategy instructional model or to comparison classes within adult education programs.
Study sample	The initial sample consisted of 146 learners. There were 375 learners across all four studies. These learners were at least 16 years old, had withdrawn from secondary education without earning a credential or without attaining 8th grade equivalency in reading, writing, or math skills; and were U.S. citizens or authorized to work in the United States. Across the four studies, 63 percent of learners were female, and 33 percent were White. On average, learners had completed a level of education between 9th or 10th grade.
Treatment group	The program taught learners to use the “READ” mnemonic: R - review the passage; E - evaluate the paragraph by asking themselves a question about what they are going to read; A - answer the question with a paraphrase; D - determine how to summarize a passage. In the first step, learners are taught to look for clues, and make predictions about the entire passage. After making a prediction, they recursively find main ideas and important details, and paraphrase small chunks of text, like paragraphs. Finally, they pull together all the information into a passage or document summary. Steps R and D are completed for the whole passage, and steps E and A are completed for each paragraph or chunk of text. In general, classes were planned for eight weeks, four days per week, and 50–60 minutes per day.
Comparison group	Comparison group instructors continued to use their existing teaching practices. They delivered materials to prepare learners for the high school equivalency exam using whole group instruction, small groups, and individual tutoring. Comparison classes were also planned for eight weeks, four days per week, and 50–60 minutes per day.

Outcomes and measurement	Study authors reported two outcome measures of academic skills that met standards: <ul style="list-style-type: none">• <i>Comprehension</i> domain<ul style="list-style-type: none">– Woodcock Reading Mastery Test-Revised Passage Comprehension subtest– Gray Oral Reading Tests Fourth Edition Comprehension subtest
Additional implementation details	Research staff trained instructors in the treatment condition before the study began and gave them reading materials for adult learners. To monitor implementation, researchers collected instructors' records of attendance and minutes of instruction and made audio- and video-recordings of all class sessions. The authors indicated that the differences between treatment and comparison groups in the number of minutes of instruction or learner attendance rates were not large enough to be distinguished from statistical noise. They also indicated that the treatment instructors taught the “READ” mnemonic strategy, and the comparison instructors did not.
Study Review URL in WWC Database	https://ies.ed.gov/ncee/wwc/Study/88734

Study details for Martin & Broadus (2013)

Study overview	This study investigated a general educational development (GED) bridge program that provided contextualized basic skills instruction, which helped learners prepare for the high school equivalency, and provided career navigation supports.
Category(ies): Strategy(ies)	<p>Adult secondary education: Preparation for the high school equivalency test</p> <p>Career development and transition instruction: Contextualized basic skills instruction and bridge classes</p> <p>Individualized and targeted supports for learners: Career navigation supports</p>
WWC rating	Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.
Setting	The study took place in a community college in the Mid-Atlantic.
Methods	The study is a randomized controlled trial. The authors used a lottery to assign learners to either receive the GED bridge program or be in a comparison group.
Study sample	The initial sample consisted of 276 learners. These learners scored at a 7th grade reading level or higher, were age 18 or older, and had an income below 200 percent of the federal poverty level. Sixty-seven percent of learners were female; the average age of learners was about 27. Just over 50 percent were Hispanic or Latino, about 35 percent were non-Hispanic/Latino African American, and 15 percent were of other races or ethnicities. About 53 percent were receiving public assistance, and 38 percent were employed when randomly assigned. Twenty-five percent scored at the 7th or 8th grade reading levels, whereas 16 percent scored at the 9th grade level, and 34 percent scored at the 10th grade level or higher. About 15 percent attained a 9th grade education or lower, whereas 30 percent finished 10th grade, 36 percent finished 11th grade, and 9 percent finished 12th grade; 10 percent did not report the grade level they had attained.
Treatment group	The GED Bridge to Health and Business program is a curriculum preparing learners for the high school equivalency exam, and it also promotes general academic habits that will help learners succeed in later college classes or training programs. The program uses a "contextualized curriculum" that aligns instruction to one of two professional focuses: health or business. The program is structured and delivered in a fashion similar to a regular college course, with the aim of familiarizing learners with this format so they are more prepared for college. Instruction was provided for 108 hours over 12 weeks. Learners also receive one-on-one guidance to help explore career and educational options. GED Bridge instructors were full-time, master's-level educators trained in adult literacy instruction and contextualized curriculum development.

Comparison group	The comparison group continued to use existing high school equivalency exam preparation practices in a program called GED Prep offered at the college. Instruction was provided for 60 hours over nine weeks, and materials included only the high school equivalency exam textbook. No counseling or support were provided. GED Prep instructors were part-time adjunct instructors with some background in adult education, but they were not trained in adult literacy.
Outcomes and measurement	<p>Study authors reported three outcome measures of educational progress that met standards:</p> <ul style="list-style-type: none"> • One in the <i>college enrollment</i> domain: Whether the learner ever enrolled at a City University of New York (CUNY) community college • One in the <i>progressing in college</i> domain: Whether the learner ever enrolled at CUNY for a second semester • One in the <i>completing high school (short-run)</i> domain: Whether the learner passed the GED exam
Additional implementation details	The study does not provide specific information about support for implementation.
Study Review URL in WWC Database	https://ies.ed.gov/ncee/wwc/Study/87318

Study details for Miller et al. (2016)

Study overview	This study investigated the YouthBuild model, which provided preparation for the high school equivalency test, integrated education and training (IET) through co-planning and alternative teaching, and wraparound services to address basic needs and logistical barriers.
Category(ies): Strategy(ies)	Adult secondary education: Preparation for the high school equivalency test Career development and transition instruction: IET through co-planning and alternative teaching Individualized and targeted supports for learners: Wraparound services
WWC rating	Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.
Setting	The study took place in 75 YouthBuild programs across the country. Programs were located in 29 states, the U.S. Virgin Islands, and Washington DC, and were found both in both densely populated urban centers and rural areas.
Methods	The study is a randomized controlled trial. The authors used a lottery to assign learners to either receive the YouthBuild program or be in a comparison group.
Study sample	The initial sample consisted of 3,929 learners. These learners generally had to be between the ages of 16 and 24, have withdrawn from secondary education without a credential, have a referral from a high school, or have a deficiency in basic skills. Eligibility criteria varied depending on the YouthBuild program site. Sixty-three percent of learners were Black, and 64 percent were male. Ninety percent had not graduated from high school or passed a high school equivalency exam, and 79 percent were under the age of 22. The authors reported on outcome measures for the full sample as well as by gender and educational attainment subgroups, which met standards.
Treatment group	The YouthBuild program includes instruction in basic skills, remedial education, and alternative education that is designed to lead to a high school diploma or equivalent credential. It also offers vocational training, which is typically training in construction, as well as youth development services including leadership training and community service. Supportive wraparound services could include counseling, case management, life-skills training, workforce preparation, follow-up services, stipends, and help with child care, transportation or housing.
Comparison group	For two years, members of the comparison group were prohibited from enrolling in YouthBuild programs that were participating in the study and given information about other appropriate services in the community. About 1 percent of learners in the comparison group enrolled in local YouthBuild programs that were not participating in the study.

Outcomes and measurement	<p>Study authors reported six outcomes of educational progress that met standards:</p> <ul style="list-style-type: none"> • Four in the <i>college enrollment</i> domain <ul style="list-style-type: none"> – Whether the learner enrolled in a four-year institution at 30 months – Whether the learner enrolled in a two-year institution at 30 months – Whether the learner enrolled in an institution offering less than two years of higher education at 30 months – Whether the learner enrolled in any college at 48 months • One in the <i>college degree attainment (short-run)</i> domain: Whether the learner received a degree at 30 months • One in the <i>college degree attainment (long-run)</i> domain: Whether the learner received a degree at 48 months <p>Study authors reported two outcomes of employment that met standards:</p> <ul style="list-style-type: none"> • One in the <i>employment (short-run)</i> domain: Whether the learner was employed in Year 1 • One in the <i>employment (long-run)</i> domain: Whether the learner was employed in Year 4 <p>Study authors reported two outcomes of earnings that met standards:</p> <ul style="list-style-type: none"> • One in the <i>earnings (short-run)</i> domain: Earnings in Year 1 • One in the <i>earning (long-run)</i> domain: Earnings in Year 4 <p>The outcomes for subgroups defined by gender and educational attainment were considered supplemental findings per the review protocol and are not reported in the evidence review. The authors also examined other outcomes that did not meet standards.</p>
Additional implementation details	The study does not provide specific information about support for implementation.
Study Review URL in WWC Database	https://ies.ed.gov/ncee/wwc/Study/87321

Study details for Modicamore et al. (2017)

Study overview	This study investigated the Accelerating Connections to Employment (ACE) program, which provided integrated education and training (IET) through co-teaching approaches, co-enrollment with credit courses at colleges, career navigation supports, and wraparound services to address basic needs and logistical barriers.
Category(ies): Strategy(ies)	Career development and transition instruction: IET through co-teaching approaches and co-enrollment with credit courses at colleges Individualized and targeted supports for learners: Career navigation supports and wraparound services
WWC rating	Meets WWC standards without reservations. The study is a randomized controlled trial with low attrition.
Setting	The study took place in nine Workforce Investment Board sites in four states.
Methods	The study is a randomized trial. The authors assigned learners through a lottery to receive the Accelerating Connections to Employment program or to a comparison condition within site.
Study sample	The initial sample consisted of 2,168 learners. These learners had to possess basic skills, including basic language proficiency, among other eligibility criteria. Minimum and maximum cut scores on skills assessments varied by Workforce Investment Board site. Learner characteristics varied by state. The percentage of learners who were White ranged from 1.5 to 54 percent. The percentage of learners who were Black ranged from 36 to 96 percent. The percentage of learners who were Latino ranged from 1.5 to 40 percent. Between 52 and 92 percent of learners were female, and between 4.6 and 58 percent of learners had less than a high school diploma.
Treatment group	The ACE program is in part based on Washington State's Integrated Basic Education and Skills Training model, and incorporates basic skills, occupational skills, and job readiness training. Key features of the ACE model included IET delivered through co-teaching, and co-enrollment with credit courses that allowed learners to earn credentials, career navigation, and support services (including academic and transportation support).
Comparison group	The comparison group had access to the existing training and services available for workers in each state. Compared with the ACE program, existing services were less likely to offer advanced career services.

Outcomes and measurement	<p>Study authors reported one outcome measure of educational progress that met standards:</p> <ul style="list-style-type: none"> • <i>Industry-recognized credential, certificate, or license (short-run)</i> domain: Whether the learner holds a vocational, technical, or professional certificate or license <p>Study authors reported one outcome measure of employment that met standards:</p> <ul style="list-style-type: none"> • <i>Employment (short-run)</i> domain: Whether the learner was employed in Year 1, for all states <p>Study authors reported three outcome measures of earnings that met standards:</p> <ul style="list-style-type: none"> • <i>Earnings (short-run)</i> domain <ul style="list-style-type: none"> – Earnings in Year 1 for Maryland and Texas – Earnings in Year 1 for Atlanta – Earnings in Year 1 for Connecticut <p>Study authors examined other outcomes that did not meet standards.</p>
Additional implementation details	The study does not provide specific information about support for implementation.
Study Review URL in WWC Database	https://ies.ed.gov/ncee/wwc/Study/88740

Study details for Robinson (2018)

Study overview	This study investigated the Pure and Complete Phonics curriculum, which provided explicit instruction on reading.
Category(ies): Strategy(ies)	Literacy instruction: Explicit instruction on reading and curricular materials
WWC rating	Meets WWC standards without reservations. It is a randomized controlled trial with low attrition.
Setting	The study took place in six correctional institutions in the Midwest.
Methods	This study is a randomized trial. Administrative staff assigned learners through a lottery to receive the Pure and Complete Phonics curriculum or to a comparison condition within correctional institutions.
Study sample	The initial sample consisted of 44 learners. These learners attended a school program within the participating correctional facilities with at least six months remaining until their release and scored at a fifth grade or lower reading level. The average age of learners in the treatment group was 42.1, and the average age of those in the comparison group was 36.5. No percentages on race or ethnicity were given, but different learners identified as Black, Asian, Hispanic, or White.
Treatment group	The program was a modification of the Orton-Gillingham curriculum known as Pure and Complete Phonics (PCP). PCP is an instructional technique that uses direct, explicit, and multisensory instruction on reading. PCP is scripted and sequenced. It employs specific references and formats to use the 26 alphabet letters and 103 phonemes or phonemic units to identify spelling and reading words. Learners received instruction using the PCP curriculum Monday through Friday for one hour each day for 15 weeks.
Comparison group	The comparison group continued to receive instruction based on their institution's existing reading curriculum for one hour per day (Monday through Friday) for 15 weeks. The existing curriculum is not named or described.
Outcomes and measurement	Study authors reported five outcome measures of academic skills that met standards: <ul style="list-style-type: none"> • Four in the <i>alphabetic</i> domain <ul style="list-style-type: none"> – Woodcock Johnson Tests of Achievement III: Letter-Word Identification subtest – Woodcock Johnson Tests of Achievement III: Work Attack subtest – Woodcock Johnson Tests of Achievement III: Spelling subtest – Woodcock Johnson Tests of Achievement III: Spelling of sounds subtest • One in the <i>reading fluency</i> domain: Woodcock Johnson Tests of Achievement III: Reading Fluency subtest

Additional implementation details The study author led a two-day training workshop for teachers before the study began. The training included an overview of the PCP curriculum, instruction on the PCP formats, and opportunities to practice the PCP approach with each other. The training emphasized the curriculum's instructional approach, including the importance of following the curriculum script. The trainer modeled each of the steps in the scripts and had teachers practice teaching each other. All teachers had an Adult Basic Education certification and had, on average, 17 years of teaching experience.

Study Review URL in WWC Database <https://ies.ed.gov/ncee/wwc/Study/87326>

Study details for Sabatini et al. (2011): Corrective Reading

Study overview	This study investigated an adaptation of the Corrective Reading (CR) approach, which provided explicit instruction on reading. This evidence review considered Sabatini et al. (2011) as three separate studies that examined different approaches to teaching literacy. This profile describes the comparison with learners who received an adaptation of the Corrective Reading Approach with learners who did not. Two other profiles describe the Guided Repeated Reading approach, designed specifically for adults, and a modified version of the Retrieval, Automaticity, Vocabulary Elaboration-Orthography approach.
Category(ies): Strategy(ies)	Literacy instruction: Explicit instruction on reading and curricular materials
WWC rating	Meets WWC standards with reservations. The study is a compromised randomized controlled trial, and the groups of learners were shown to be similar at the start of the study.
Setting	The study took place in several large adult education centers in two major cities in the mid-Atlantic and southern regions of the United States.
Methods	This is a randomized controlled trial. The authors assigned learners through a lottery to receive one of the approaches to teaching literacy. However, the assignment was compromised because some learners dropped out before completing the treatment and were replaced with learners from the participating classrooms, assuming scheduling and tutor availability. The authors demonstrated that the final group of learners were similar to each other at the beginning of the study.
Study sample	The initial sample consisted of 300 learners. These learners scored below the 7th grade level on a word recognition test and demonstrated English proficiency if they were not native English speakers. Sixty-seven percent of learners were female; on average, they were 36 years old. Eighty-three percent were African American, 9 percent were Latino(a), and 8 percent were White.
Treatment group	The adaptation of the CR program provided explicit instruction on reading, using a traditional phonics instruction for treating reading disabilities that is commonly used in adolescents. Instruction focuses on strengthening and expanding the reader's mastery of grapheme-phoneme correspondences, and on word recognition. Through CR, learners are taught the structure of words through an explicit, systematic, and sequenced curriculum that teaches decoding and spelling, with phonemic analyses that are taught in relation to syllable types. Learners progress from a phonological focus to word-level practice, and eventually to processing words quickly by recognizing patterns and reading context. Learners also read controlled (decodable) texts to gain fluency. Instructional time is 80 to 90 percent phonics, and 10 to 20 percent fluency. Instructional sessions were conducted three times per week for 10-18 weeks. The goal was to complete 45 sessions of 75 minutes each.
Comparison group	The comparison group participated in one of two tutoring programs: either Retrieval, Automaticity, Vocabulary Elaboration-Orthography (RAVE-O), or Guided Repeated Reading (GRR). These programs are described in their own profiles.

Outcomes and measurement	Study authors reported six outcome measures of academic skills that met standards: <ul style="list-style-type: none">• Four in the <i>alphabetics</i> domain<ul style="list-style-type: none">– Woodcock Johnson: Word Attack subtest– Woodcock Johnson: Letter-word identification subtest– Test of Word Reading Efficiency: Sight Word Efficiency subtest– Test of Word Reading Efficiency: Phonemic Decoding Efficiency subtest• One in the <i>comprehension</i> domain: Woodcock Johnson Passage Comprehension subtest• One in the <i>reading fluency</i> domain: Woodcock Johnson: Reading Fluency subtest
Additional implementation details	Tutors had a bachelor's degree and were comfortable with technology. Tutor training included a one-day (5-6 hour) workshop, two individual follow-up meetings of about 1-2 hours each with experienced tutors or trainers, and review and practice with materials, role-plays, and reviews of sample sessions. Total time spent training was 12 to 18 hours. During implementation, conferences were conducted to ensure techniques were being consistently applied.
Study Review URL in WWC Database	https://ies.ed.gov/ncee/wwc/Study/87327

Study details for Sabatini et al. (2011): Guided Repeated Reading

Study overview	This study investigated a guided repeated reading approach, which provided explicit instruction on reading. This evidence review considered Sabatini et al. (2011) as three separate studies that examined different approaches to teaching literacy. This profile describes the comparison with learners who received a Guided Repeated Reading program designed specifically for adults with learners who did not. Two other profiles describe an adaptation of Corrective Reading Approach and a modified version of Retrieval, Automaticity, Vocabulary Elaboration-Orthography approaches.
Category(ies): Strategy(ies)	Literacy instruction: Explicit instruction on reading
WWC rating	Meets WWC standards with reservations. The study is a compromised randomized controlled trial, and the groups of learners were shown to be similar at the start of the study.
Setting	The study took place in several large adult education centers in two major cities in the mid-Atlantic and southern regions of the United States.
Methods	This is a randomized controlled trial. The authors assigned learners through a lottery to receive one of the approaches to teaching literacy. However, the assignment was compromised because some learners dropped out before completing the treatment and were replaced with learners from the participating classrooms, assuming scheduling and tutor availability. The authors demonstrated that the final group of learners were similar to each other at the beginning of the study.
Study sample	The initial sample consisted of 300 learners. These learners scored below the 7th grade level on a word recognition test and demonstrated English proficiency if they were not a native English speaker. Sixty-seven percent of learners were female; on average, they were 36 years old. Eighty-three percent were African American, 9 percent were Latino(a), and 8 percent were White.
Treatment group	The Guided Repeated Reading (GRR) program provided explicit instruction on reading and was designed specifically for adult learners. It targets text fluency skills, although phonics instruction is also embedded within the GRR approach. Instruction includes teacher modeling oral reading, shared reading between learner and teacher—reading orally in unison, and learners reading orally by themselves up to three times in the same session. The reading passages are brief, contain predictable and rhythmic text to promote fluency, and are selected based on the level and interests of the adult learners. Less than 10 to 20 percent of instructional time is spent on phonics, and 80 to 90 percent or more is spent on fluency. Instructional sessions were conducted three times per week for 10–18 weeks. The goal was to complete 45 sessions of 75 minutes each.
Comparison group	The comparison group participated in one of two tutoring programs: either Retrieval, Automaticity, Vocabulary Elaboration-Orthography (RAVE-O), or Corrective Reading (CR). These programs are described in their own profiles.

Outcomes and measurement	Study authors reported six outcome measures of academic skills that met standards: <ul style="list-style-type: none">• Four in the <i>alphabetics</i> domain<ul style="list-style-type: none">– Woodcock Johnson: Word Attack subtest– Woodcock Johnson: Letter-word identification subtest– Test of Word Reading Efficiency: Sight Word Efficiency subtest– Test of Word Reading Efficiency: Phonemic Decoding Efficiency subtest• One in the <i>comprehension</i> domain: Woodcock Johnson Passage Comprehension subtest• One in the <i>reading fluency</i> domain: Woodcock Johnson: Reading Fluency subtest.
Additional implementation details	Tutors had a bachelor's degree and were comfortable with technology. Tutor training included a one-day (5-6 hour) workshop, two individual follow-up meetings of about 1-2 hours each with experienced tutors or trainers, and review and practice with materials, role-plays, and reviews of sample sessions. Total time spent training was 12 to 18 hours. During implementation, conferences were conducted to ensure techniques were being consistently applied.
Study Review URL in WWC Database	https://ies.ed.gov/ncee/wwc/Study/88780

Study details for Sabatini et al. (2011): Retrieval, Automaticity, Vocabulary Exploration - Orthography

Study overview	This study investigated the Retrieval, Automaticity, Vocabulary Elaboration-Orthography (RAVE-O) approach, which provided explicit instruction on reading.
	This evidence review considered Sabatini et al. (2011) as three separate studies that examined different approaches to teaching literacy. This profile describes the comparison with learners who received a modified version of Retrieval, Automaticity, Vocabulary Elaboration-Orthography approach with learners who did not. Two other profiles describe an adaptation of Corrective Reading Approach and a Guided Repeated Reading program designed specifically for adults.
Category(ies): Strategy(ies)	Literacy instruction: Explicit instruction on reading and curricular materials
WWC rating	Meets WWC standards with reservations. The study is a compromised randomized controlled trial, and the groups of learners were shown to be similar at the start of the study.
Setting	The study took place in several large adult education centers in two major cities in the mid-Atlantic and southern regions of the United States.
Methods	This is a randomized controlled trial. The authors used a lottery to assign learners to receive one of the approaches to teaching literacy. However, the assignment was compromised because some learners dropped out before completing the treatment; any learners who dropped out were replaced with another learner from the participating classrooms assuming scheduling and tutor availability. The authors demonstrated that the final group of learners were similar to each other at the beginning of the study.
Study sample	The initial sample consisted of 300 learners. These learners scored below the 7th grade level on a word recognition test and demonstrated English proficiency if they were not a native English speaker. Sixty-seven percent of learners were female; on average, they were 36 years old. Eighty-three percent were African American, 9 percent were Latino(a), and 8 percent were White.
Treatment group	The Retrieval, Automaticity, Vocabulary Elaboration-Orthography (RAVE-O) program provided explicit instruction on reading by supplementing phonics instruction with fluency training and a stronger focus on fluency. This approach was based on the Double Deficit hypothesis, which suggests deficits in either phonological processing or naming speed can impede reading acquisition. RAVE-O is designed to address a naming speed deficit or a double deficit and is combined with an abbreviated version of Corrective Reading, a systematic phonics program described in its own profile. Instructional time is 25 to 35 percent phonics and 65 to 75 percent fluency. Instructional sessions were conducted three times per week for 10 to 18 weeks. The goal was to complete 45 sessions of 75 minutes each.
Comparison group	The comparison group participated in one of two tutoring programs: either Corrective Reading (CR) or Guided Repeated Reading (GRR). These programs are described in their own profiles.

Outcomes and measurement	Study authors reported six outcome measures of academic skills that met standards: <ul style="list-style-type: none">• Four in the <i>alphabetics</i> domain<ul style="list-style-type: none">– Woodcock Johnson: Word Attack subtest– Woodcock Johnson: Letter-Word Identification subtest– Test of Word Reading Efficiency: Sight Word Efficiency subtest– Test of Word Reading Efficiency: Phonemic Decoding Efficiency subtest• One in the <i>comprehension</i> domain: Woodcock Johnson Passage Comprehension subtest• One in the <i>reading fluency</i> domain: Woodcock Johnson: Reading Fluency subtest
Additional implementation details	Tutors had a bachelor's degree and were comfortable with technology. Tutor training included a one-day (5-6 hour) workshop, two individual follow-up meetings of about 1-2 hours each with experienced tutors or trainers, and review and practice with materials, role-plays, and reviews of sample sessions. Total time spent training was 12 to 18 hours. During implementation, conferences were conducted to ensure techniques were being consistently applied.
Study Review URL in WWC Database	https://ies.ed.gov/ncee/wwc/Study/88769

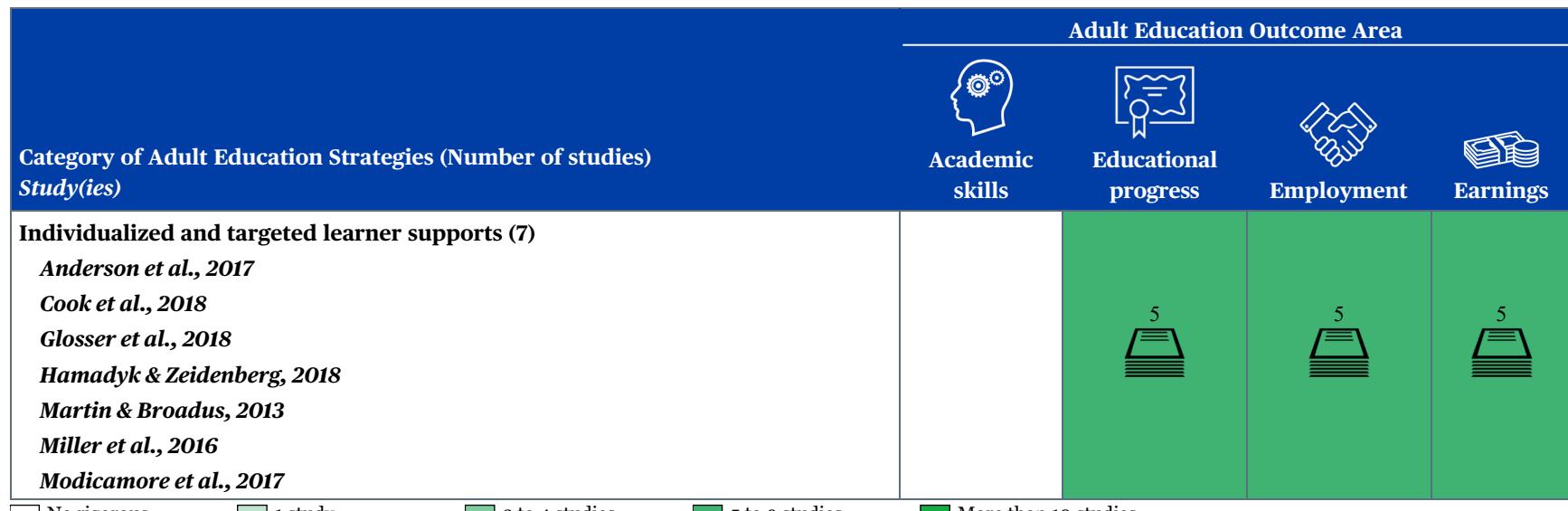
B.3. Number and List of Effectiveness Studies within Particular Categories of Adult Education Strategies, by Outcome Area

This table expands on Exhibit 3 in the Snapshot to include the specific studies, of the 22 that met What Works Clearinghouse version 4.0 standards, that fall under each category of adult education strategies. The table includes a short reference for the main study; the full set of references can be found in Section B.1.

Table B.1. Number and List of Effectiveness Studies within Particular Categories of Adult Education Strategies, by Outcome Area

Category of Adult Education Strategies (Number of studies) Study(ies)	Adult Education Outcome Area			
	 Academic skills	 Educational progress	 Employment	 Earnings
Literacy instruction (14) <i>Alamprese et al., 2011 [Making Sense of Decoding and Spelling]</i> <i>Alamprese et al., 2011 [K-3 curriculum adapted for adult learners]</i> <i>Batchelder & Rachal, 2000</i> <i>Gray et al., 2018</i> <i>Greenberg et al., 2011 [Decoding and Fluency]</i> <i>Greenberg et al., 2011 [Decoding, Comprehension, and Fluency]</i> <i>Greenberg et al., 2011 [Decoding, Comprehension, Extensive Reading, and Fluency]</i> <i>Greenberg et al., 2011 [Extensive reading]</i> <i>Hock & Mellard, 2011 [Prediction Strategy]</i> <i>Hock & Mellard, 2011 [Summarization Strategy]</i> <i>Robinson, 2018</i> <i>Sabatini et al., 2011 [Corrective Reading]</i> <i>Sabatini et al., 2011 [Guided Repeated Reading]</i> <i>Sabatini et al., 2011 [RAVE-O]</i>	 14			

Category of Adult Education Strategies (Number of studies) <i>Study(ies)</i>	Adult Education Outcome Area			
	 Academic skills	 Educational progress	 Employment	 Earnings
Numeracy instruction (1) <i>Batchelder & Rachal, 2000</i>	1 			
English language acquisition instruction (1) <i>Condelli et al., 2010</i>	1 			
Adult secondary education (3) <i>Batchelder & Rachal, 2000</i> <i>Martin & Broadus, 2013</i> <i>Miller et al., 2016</i>	1 	2 	1 	1 
Tools to improve access to adult education instruction (2) <i>Batchelder & Rachal, 2000</i> <i>Hamadyk & Zeidenberg, 2018</i>	1 	1 	1 	1 
Career development and transition instruction (7) <i>Anderson et al., 2017</i> <i>Cook et al., 2018</i> <i>Glosser et al., 2018</i> <i>Hamadyk & Zeidenberg, 2018</i> <i>Martin & Broadus, 2013</i> <i>Miller et al., 2016</i> <i>Modicamore et al., 2017</i>		5 	5 	5 



No rigorous effectiveness studies 1 study 2 to 4 studies 5 to 9 studies More than 10 studies

Source: The 22 studies that met What Works Clearinghouse version 4.0 standards with and without reservations.

Note: Adult education categories are not mutually exclusive, so a single study may have examined strategies in multiple categories, and some studies examined effects in two or more outcome areas. Outcomes were combined into outcome areas that align with the primary indicators of performance for programs receiving Title II funding—academic skills, educational progress, employment, and earnings. See Appendix A for additional information on how outcomes were grouped into these four adult education outcome areas.

B.4. Strategies Examined by the 22 Studies that Met Standards and their Effects on Learner Outcomes

For the 22 studies that met What Works Clearinghouse version 4.0 standards, this section contains the strategies they examined and their effects on learner outcomes. The evidence review snapshot presents findings for four key adult education outcome areas: academic skills, educational progress, employment and earnings. The table below presents findings for these outcome areas, broken out into the outcome domains specified within the WWC's Review of Individual Studies Protocol. The table includes a short reference only for the main study reference, although information was also drawn from additional references where available and the full set of references can be found in Section B.1.

Table B.2. The 22 studies that met standards categorized by strategy, and their effect on learner outcomes

Primary reference Study <i>WWC rating</i> • Strategies examined	Adult Education Outcome Areas and RISP Outcome Domains														
	Academic skills					Educational progress					Employment	Earnings			
	Alphabetics	Comprehension	Reading fluency	Literacy achievement	English language proficiency	General mathematics	Progressing in college	Credential (short-run)	College enrollment	Completing high school (short-run)	College degree attainment (short-run)	College degree attainment (long-run)	Employment (short-run)	Employment (long-run)	Earnings (short-run)
Alamprese et al., 2011: Effects of a structured decoding curriculum on adult literacy learners' reading development															
Making Sense of Decoding and Spelling <i>Meets standards with reservations</i> • Explicit instruction on reading and spelling, and curricular materials	Ø	Ø	Ø												

Adult Education Outcome Areas and RISP Outcome Domains															
	Academic skills						Educational progress					Employment		Earnings	
	Alphabetics	Comprehension	Reading fluency	Literacy achievement	English language proficiency	General mathematics	Progressing in college	Credential (short-run)	College enrollment	Completing high school (short-run)	College degree attainment (short-run)	College degree attainment (long-run)	Employment (short-run)	Employment (long-run)	Earnings (short-run)
Primary reference Study <i>WWC rating</i> • Strategies examined															
K-3 curriculum adapted for adult learners <i>Meets standards with reservations</i> • Explicit instruction on reading and spelling	∅	∅	∅												
Anderson et al., 2017: New evidence on integrated career pathways: Final impact report for Accelerating Opportunity															
<i>Meets standards with reservations</i> • Integrated education and training (IET) using co-teaching approaches, career navigation supports, and wraparound services												⊕	⊕	⊕	⊕

Adult Education Outcome Areas and RISP Outcome Domains															
	Academic skills						Educational progress				Employment		Earnings		
	Alphabetics	Comprehension	Reading fluency	Literacy achievement	English language proficiency	General mathematics	Progressing in college	Credential (short-run)	College enrollment	Completing high school (short-run)	College degree attainment (short-run)	College degree attainment (long-run)	Employment (short-run)	Employment (long-run)	Earnings (short-run)
Primary reference Study <i>WWC rating</i> • Strategies examined				∅		∅									
Batchelder & Rachal, 2000: Efficacy of a computer-assisted instruction program in a prison setting: An experimental study															
<i>Meets standards without reservations</i> • Literacy curricular materials, numeracy curricular materials, preparation for the high school equivalency test, and technology learning tools				∅		∅									
Condelli et al., 2010: The impact of a reading intervention for low-literate adult ESL learners															
<i>Meets standards without reservations</i> • English language acquisition approaches to reading, writing, listening, and speaking, and curricular materials	∅	∅		∅											

Adult Education Outcome Areas and RISP Outcome Domains															
	Academic skills						Educational progress				Employment		Earnings		
	Alphabetics	Comprehension	Reading fluency	Literacy achievement	English language proficiency	General mathematics	Progressing in college	Credential (short-run)	College enrollment	Completing high school (short-run)	College degree attainment (short-run)	College degree attainment (long-run)	Employment (short-run)	Employment (long-run)	Earnings (short-run)
Primary reference Study <i>WWC rating</i> • Strategies examined							∅	∅							
Cook et al., 2018: Madison Area Technical College Patient Care Pathway program: Implementation and early impact report															
Meets standards without reservations • Contextualized basic skills instruction, bridge classes, and wraparound services							∅	∅							
Glosser et al., 2018: Washington State's Integrated Basic Education and Skills Training (I-BEST) program in three colleges: Implementation and early impact report															
Meets standards without reservations • IET using co-teaching approaches, co-enrollment with credit courses at colleges, career navigation services, and wraparound services							+				∅	∅			

Adult Education Outcome Areas and RISP Outcome Domains															
	Academic skills						Educational progress				Employment		Earnings		
	Alphabetics	Comprehension	Reading fluency	Literacy achievement	English language proficiency	General mathematics	Progressing in college	Credential (short-run)	College enrollment	Completing high school (short-run)	College degree attainment (short-run)	College degree attainment (long-run)	Employment (short-run)	Employment (long-run)	Earnings (short-run)
Primary reference Study <i>WWC rating</i> • Strategies examined															
Gray et al., 2018: Morpho-phonemic analysis boosts word reading for adult struggling readers															
<i>Meets standards without reservations</i> • Explicit instruction on reading	∅	∅													
Greenberg et al., 2011: A randomized control study of instructional approaches for struggling adult readers															
Decoding and fluency <i>Meets standards with reservations</i> • Explicit instruction on reading and curricular materials		∅	∅												
Decoding, comprehension, and fluency <i>Meets standards with reservations</i> • Explicit instruction on reading and curricular materials		∅	∅												

Adult Education Outcome Areas and RISP Outcome Domains															
	Academic skills						Educational progress				Employment		Earnings		
	Alphabetics	Comprehension	Reading fluency	Literacy achievement	English language proficiency	General mathematics	Progressing in college	Credential (short-run)	College enrollment	Completing high school (short-run)	College degree attainment (short-run)	College degree attainment (long-run)	Employment (short-run)	Employment (long-run)	Earnings (short-run)
Primary reference Study WWC rating • Strategies examined		Ø	Ø												
Decoding, comprehension, fluency, and extensive reading <i>Meets standards with reservations</i> • Explicit instruction on reading, extended reading practice, and curricular materials		Ø	Ø												
Extensive reading <i>Meets standards with reservations</i> • Extended reading practice	-	Ø	Ø												

Adult Education Outcome Areas and RISP Outcome Domains															
	Academic skills						Educational progress				Employment		Earnings		
	Alphabetics	Comprehension	Reading fluency	Literacy achievement	English language proficiency	General mathematics	Progressing in college	Credential (short-run)	College enrollment	Completing high school (short-run)	College degree attainment (short-run)	College degree attainment (long-run)	Employment (short-run)	Employment (long-run)	Earnings (short-run)
Primary reference Study <i>WWC rating</i> • Strategies examined							∅	+							
Hamadyk & Zeidenberg, 2018: Des Moines Area Community College Workforce Training Academy Connect Program: Implementation and early impact report															
<i>Meets standards without reservations</i> • Technology learning tools, coordinated enrollment in adult education and occupational skills training, workforce preparation, career navigation supports, and wraparound services							∅	+				∅		∅	
Hock & Mellard, 2011: Efficacy of learning strategies instruction in adult education															
Prediction strategy <i>Meets standards with reservations</i> • Explicit instruction on reading		∅													

Adult Education Outcome Areas and RISP Outcome Domains															
	Academic skills						Educational progress					Employment		Earnings	
	Alphabetics	Comprehension	Reading fluency	Literacy achievement	English language proficiency	General mathematics	Progressing in college	Credential (short-run)	College enrollment	Completing high school (short-run)	College degree attainment (short-run)	College degree attainment (long-run)	Employment (short-run)	Employment (long-run)	Earnings (short-run)
Primary reference Study <i>WWC rating</i> • Strategies examined															
Summarization strategy <i>Meets standards without reservations</i> • Explicit instruction on reading		Q													
Martin & Broadus, 2013: Enhancing GED instruction to prepare students for college and careers: Early success in LaGuardia Community College's Bridge to Health and Business Program															
<i>Meets standards without reservations</i> • Preparation for the high school equivalency test, contextualized basic skills instruction, bridge classes, and career navigation supports							+	+	+						

Adult Education Outcome Areas and RISP Outcome Domains															
	Academic skills						Educational progress				Employment		Earnings		
	Alphabetics	Comprehension	Reading fluency	Literacy achievement	English language proficiency	General mathematics	Progressing in college	Credential (short-run)	College enrollment	Completing high school (short-run)	College degree attainment (short-run)	College degree attainment (long-run)	Employment (short-run)	Employment (long-run)	Earnings (short-run)
Primary reference Study <i>WWC rating</i> • Strategies examined															
Miller et al., 2016: Building a future: Interim impact findings from the YouthBuild evaluation															
<i>Meets standards without reservations</i> • Preparation for the high school equivalency test, IET through co-planning and alternative teaching, and wraparound services															
Modicamore et al., 2017: Accelerating connections to employment. Volume I: Final evaluation report															
<i>Meets standards without reservations</i> • IET through co-teaching approaches, co-enrollment with credit courses at colleges, career navigation supports, and wraparound services															

Adult Education Outcome Areas and RISP Outcome Domains															
	Academic skills					Educational progress					Employment		Earnings		
	Alphabetics	Comprehension	Reading fluency	Literacy achievement	English language proficiency	General mathematics	Progressing in college	Credential (short-run)	College enrollment	Completing high school (short-run)	College degree attainment (short-run)	College degree attainment (long-run)	Employment (short-run)	Employment (long-run)	Earnings (short-run)
Primary reference Study <i>WWC rating</i> • Strategies examined															
Robinson, 2018: A study designed to increase the literacy skills of incarcerated adults															
<i>Meets standards without reservations</i> • Explicit instruction on reading and curricular materials	Ø		Ø												
Sabatini et al., 2011: Relative effectiveness of reading intervention programs for adults with low literacy															
Corrective reading <i>Meets standards with reservations</i> • Explicit instruction on reading and curricular materials	Ø	Ø	Ø												
Guided reading <i>Meets standards with reservations</i> • Explicit instruction on reading	Ø	Ø	Ø												

Adult Education Outcome Areas and RISP Outcome Domains															
	Academic skills						Educational progress					Employment		Earnings	
	Alphabetics	Comprehension	Reading fluency	Literacy achievement	English language proficiency	General mathematics	Progressing in college	Credential (short-run)	College enrollment	Completing high school (short-run)	College degree attainment (short-run)	College degree attainment (long-run)	Employment (short-run)	Employment (long-run)	Earnings (short-run)
Primary reference Study WWC rating • Strategies examined															
RAVE-O <i>Meets standards with reservations</i> • Explicit instruction on reading and curricular materials	∅	∅	∅												

The following icons indicate presence or lack of a significant effect:

∅ No effect

⊕ Positive effect

⊖ Negative effect

⊕⊖ Mixed effect

Source: The 22 studies that met What Works Clearinghouse version 4.0 standards.

Note: Mixed effects indicates the findings within an outcome domain include both statistically significant positive and statistically significant negative effects. See Appendix A for additional information on how findings were classified as no effect, positive effect, negative effect, and mixed effects.

B.5. Presence of Rigorous Research on Particular Strategies in Adult Education and the Effects on Learner Outcomes

This section contains a table for each of the seven adult education categories included in the framework used to organize strategies for the evidence review. The tables contain information about the specific strategies examined across the 22 students that met What Works Clearinghouse version 4.0 standards, as well as the effect found of those strategies on academic skills, educational progress, employment, and earnings. While the tables include a short reference for the main study reference, information was also drawn from additional references where available and the full reference can be found in Section B.1.

Table B.3. Presence of rigorous research on selected literacy strategies and the effects on learner outcomes

Strategies Study	Adult Education Outcome Area			
	 Academic skills	 Educational progress	 Employment	 Earnings
Literacy strategies				
Explicit instruction on reading				
Explicit instruction on reading alone <i>Gray et al., 2018; Hock & Mellard, 2011 [Prediction Strategy]; Hock & Mellard, 2011 [Summarization Strategy]; Sabatini et al., 2011 [Guided Repeated Reading]</i>				
With instruction on spelling <i>Alamprese et al., 2011 [K-3 curriculum adapted for adult learners]</i>				
With instruction on spelling and curricular materials <i>Alamprese et al., 2011 [Making Sense of Decoding and Spelling]</i>				

Strategies	Study	Adult Education Outcome Area			
		Academic skills	Educational progress	Employment	Earnings
With curricular materials	<i>Greenberg et al., 2011 [Decoding and Fluency]; Greenberg et al., 2011 [Decoding, Comprehension, and Fluency]; Robinson, 2018; Sabatini et al., 2011 [Corrective Reading]; Sabatini et al., 2011 [RAVE-O]</i>	∅			
With extended reading practice and curricular materials	<i>Greenberg et al., 2011 [Decoding, Comprehension, Extensive Reading, and Fluency]</i>	∅			
Extended reading practice	<i>Greenberg et al., 2011 [Extensive reading]</i>	—			
Curricular materials					
With numeracy curricular materials; preparation for high school equivalence test; and technology learning tools	<i>Batchelder & Rachal, 2000</i>	∅			
Selected strategies with no rigorous research					
Explicit framing					
Explicit writing instruction					
Integrated reading and writing instruction					
Real-world contexts in instruction					

The following icons indicate presence or lack of a significant effect:

∅ No effect

⊕ Positive effect

⊖ Negative effect

± Mixed effect

Source: The 14 studies that met What Works Clearinghouse standards and examined literacy strategies in adult education.

Note: Outcomes were combined into outcome areas that align with the primary indicators of performance for programs receiving Title II funding—academic skills, educational progress, employment, and earnings. Mixed effects indicates the findings within an outcome area include both statistically significant positive and statistically significant negative effects. See Appendix A for additional information on how findings were classified as no effect, positive effect, negative effect, and mixed effects.

Table B.4. Presence of rigorous research on selected numeracy strategies and the effects on learner outcomes

Strategies Study	Adult Education Outcome Areas			
	 Academic skills	 Educational progress	 Employment	 Earnings
Numeracy strategies				
Curricular materials				
With literacy curricular materials; preparation for high school equivalency test; and technology learning tools Batchelder & Rachal, 2000				
Selected strategies with no rigorous research				
Constructivist teaching				
Instruction focused on multiple strands of mathematical proficiency				
Real-world contexts in instruction				
Mathematical practices, including problem solving and mathematical justification				

The following icons indicate presence or lack of a significant effect:

 No effect
  Positive effect
  Negative effect
  Mixed effect

Source: The one study that met What Works Clearinghouse standards and examined numeracy strategies in adult education.

Note: Outcomes were combined into outcome areas that align with the primary indicators of performance for programs receiving Title II funding—academic skills, educational progress, employment, and earnings. Mixed effects indicates the findings within an outcome area include both statistically significant positive and statistically significant negative effects. See Appendix A for additional information on how findings were classified as no effect, positive effect, negative effect, and mixed effects.

Table B.5. Presence of rigorous research on selected English language acquisition strategies and the effects on learner outcomes

Strategies <i>Study</i>	Adult Education Outcome Areas			
	Academic skills	Educational progress	Employment	Earnings
English language acquisition strategies				
Focus on listening and speaking				
With focus on reading and writing; and curricular materials <i>Condelli et al., 2010</i>	∅			
Selected strategies with no rigorous research				
Integrate civics education into English language acquisition instruction				
Real-world contexts in instruction				
Focus on functional language skills needed for the workplace				
Connect with native language literacy skills				

The following icons indicate presence or lack of a significant effect:

∅ No effect + Positive effect - Negative effect ± Mixed effect

Source: The one study that met What Works Clearinghouse standards and examined English language acquisition strategies in adult education.

Note: Outcomes were combined into outcome areas that align with the primary indicators of performance for programs receiving Title II funding—academic skills, educational progress, employment, and earnings. Mixed effects indicates the findings within an outcome area include both statistically significant positive and statistically significant negative effects. See Appendix A for additional information on how findings were classified as no effect, positive effect, negative effect, and mixed effects.

Table B.6. Presence of rigorous research on selected adult secondary education strategies and the effects on learner outcomes

Strategies <i>Study</i>	Adult Education Outcome Areas			
	Academic skills	Educational progress	Employment	Earnings
Adult secondary education strategies				
Preparation for high school (HS) equivalency test				
With literacy curricular materials; numeracy curricular materials; and technology learning tools <i>Batchelder & Rachal, 2000</i>	∅			
With bridge classes; contextualized basic instruction; and career navigation supports <i>Martin & Broadus, 2013</i>		+		
With integrated education and training (IET) through co-planning and alternate teaching; and wraparound services <i>Miller et al., 2016</i>		+	∅	-
Selected strategies with no rigorous research				
Competency-based HS equivalency				
Curricular materials				
Real-world contexts in instruction				

The following icons indicate presence or lack of a significant effect:

∅ No effect

⊕ Positive effect

⊖ Negative effect

± Mixed effect

Source: The three studies that met What Works Clearinghouse standards and examined adult secondary education strategies in adult education.

Note: Outcomes were combined into outcome areas that align with the primary indicators of performance for programs receiving Title II funding—academic skills, educational progress, employment, and earnings. Mixed effects indicates the findings within an outcome area include both statistically significant positive and statistically significant negative effects. See Appendix A for additional information on how findings were classified as no effect, positive effect, negative effect, and mixed effects.

Table B.7. Presence of rigorous research on selected strategies for improving access to instruction and the effects on learner outcomes

Strategies	Study	Adult Education Outcome Areas			
		Academic skills	Educational progress	Employment	Earnings
Strategies for improving access to instruction					
Technology learning tools					
With literacy curricular materials; numeracy curricular materials; and preparation for high school (HS) equivalency test <i>Batchelder & Rachal, 2000</i>		∅			
With coordinated enrollment in adult education and occupational skills training; workforce preparation; career navigation supports; and wraparound services <i>Hamadyk & Zeidenberg, 2018</i>			+	∅	∅
Selected strategies with no rigorous research					
Distance learning					
Blended learning					
Mobile or online learning tools					
Self-paced in-person facilitated learning					
Alternative locations and times					
Intake and orientation models					
Attendance policies					
Employer partnerships					

The following icons indicate presence or lack of a significant effect:

∅ No effect + Positive effect - Negative effect ± Mixed effect

Source: The two studies that met What Works Clearinghouse standards and examined strategies for improving access to instruction.

Note: Outcomes were combined into outcome areas that align with the primary indicators of performance for programs receiving Title II funding—academic skills, educational progress, employment, and earnings. Mixed effects indicates the findings within an outcome area include both statistically significant positive and statistically significant negative effects. See Appendix A for additional information on how findings were classified as no effect, positive effect, negative effect, and mixed effects.

Table B.8. Presence of rigorous research on selected career development and transition strategies and the effects on learner outcomes

Strategies Study	Adult Education Outcome Areas			
	 Academic skills	 Educational progress	 Employment	 Earnings
Career development and transition strategies				
Integrated education and training (IET) through co-teaching				
With career navigation supports and wraparound services <i>Anderson et al., 2017</i>				
With co-enrollment with credit courses at colleges; career navigation supports; and wraparound services <i>Glosser et al., 2018</i>				
With co-enrollment with credit courses at colleges; career navigation supports; and wraparound services <i>Modicamore et al., 2017</i>				
IET through co-planning and alternate teaching				
With preparation for high school (HS) equivalency test and wraparound services <i>Miller et al., 2016</i>				
Coordinated enrollment in adult education and occupational skills training				
With technology learning tools; workforce preparation; career navigation supports; and wraparound services <i>Hamadyk & Zeidenberg, 2018</i>				

Strategies	Study	Adult Education Outcome Areas			
		Academic skills	Educational progress	Employment	Earnings
On-ramp and bridge classes focused on preparing learners for occupational skills training or college readiness					
With contextualized basic skills instruction and wraparound services <i>Cook et al., 2018</i>			Ø		
With preparation for HS equivalency test; contextualized basic skills instruction; and career navigation supports <i>Martin & Broadus, 2013</i>			+		
Selected strategies with no rigorous research					
Pre-apprenticeships					
Alternative credentialing or badges					
Co-enrollment with developmental education at colleges					

The following icons indicate presence or lack of a significant effect:

Ø No effect + Positive effect - Negative effect ± Mixed effect

Source: The seven studies that met What Works Clearinghouse standards and examined career development and transition strategies.

Note: Outcomes were combined into outcome areas that align with the primary indicators of performance for programs receiving Title II funding—academic skills, educational progress, employment, and earnings. Mixed effects indicates the findings within an outcome area include both statistically significant positive and statistically significant negative effects. See Appendix A for additional information on how findings were classified as no effect, positive effect, negative effect, and mixed effects.

Table B.9. Presence of rigorous research on selected targeted learner support strategies and the effects on learner outcomes

Strategies Study	Adult Education Outcome Areas			
	Academic skills	Educational progress	Employment	Earnings
Targeted learner support strategies				
Career navigation supports				
With IET through co-teaching and wraparound services to address basic needs and logistical barriers <i>Anderson et al., 2017</i>			±	±
With IET through co-teaching; co-enrollment with credit courses at colleges; and wraparound services to address basic needs and logistical barriers <i>Glosser et al., 2018</i>	+	Ø	Ø	Ø
With technology learning tools; coordinated enrollment in adult education and occupational skills; workforce preparation; and wraparound services to address basic needs and logistical barriers <i>Hamadyk & Zeidenberg, 2018</i>	+	Ø	Ø	Ø
With preparation for high school (HS) equivalency test; contextualized basic instruction; and bridge classes <i>Martin & Broadus, 2013</i>	+			
With IET through co-teaching; co-enrollment with credit courses at colleges; and wraparound services to address basic needs and logistical barriers <i>Modicamore et al., 2017</i>	+	+	+	+
Wraparound services to address basic needs and logistical barriers				
With IET through co-planning and alternate teaching; and preparation for HS equivalency test <i>Miller et al., 2016</i>	+	Ø	Ø	-
With contextualized basic skills instruction; and bridge classes <i>Cook et al., 2018</i>	Ø			

Strategies	Adult Education Outcome Areas			
	Academic skills	Educational progress	Employment	Earnings
Selected strategies with no rigorous research				
Texting or calls to encourage persistence				
Re-entry initiatives and post-release services for formerly incarcerated individuals				

The following icons indicate presence or lack of a significant effect:

 No effect
  Positive effect
  Negative effect
  Mixed effect

Source: The seven studies that met What Works Clearinghouse standards and examined targeted learner supports.

Note: Outcomes were combined into outcome areas that align with the primary indicators of performance for programs receiving Title II funding—academic skills, educational progress, employment, and earnings. Mixed effects indicates the findings within an outcome area include both statistically significant positive and statistically significant negative effects. See Appendix A for additional information on how findings were classified as no effect, positive effect, negative effect, and mixed effects.